S. HRG. 100-187—Part 1

CLEAN AIR ACT AMENDMENTS OF 1987

HEARINGS

BEFORE THE

SUBCOMMITTEE ON
ENVIRONMENTAL PROTECTION

OF THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

FIRST SESSION

ON

S. 300, S. 321, S. 1351, and S. 1384

BILLS TO AMEND THE CLEAN AIR ACT

JUNE 16, 17, 1987

PART 1

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CLEAN AIR ACT AMENDMENTS OF 1987

Nonattainment

TUESDAY, JUNE 16, 1987

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:00 a.m., in Room SD-406, Dirksen Senate Office Building, Hon. George Mitchell (chairman of the subcommittee) presiding.

Present: Senators Mitchell, Baucus, Chafee, Stafford, Simpson, Pressler, Lautenberg, and Graham.

OPENING STATEMENT OF HON. GEORGE J. MITCHELL, U.S. SENATOR FROM THE STATE OF MAINE

Senator MITCHELL. The subcommittee will please come to order.

Good morning ladies and gentlemen. Welcome to this morning's hearing which focuses on a major public health concern, the quality of the air we breathe.

Over one-third of Americans live in areas not in compliance with the Federal air quality standards for ozone and carbon monoxide.

When the Clean Air Act was last authorized, Congress determined that all areas should be in compliance with air quality standards no later than the end of this year. Yet EPA estimates that over 70 areas, most of them urban, will be in violation of the standards at the end of this year.

Last week, I and other members of the Environment and Public Works Committee introduced S. 1351. This legislation is designed to bring all areas of the country into attainment with the health based air quality standards as soon as they reasonably can.

The legislation is demanding, but so is the problem. I emphasize that the legislation is intended to make the air safe to breathe. The required reductions are needed only so long as an area is in violation of Federal air quality standards. Emissions of pollutants must be reduced until the area complies with the Federal standard.

There are no easy solutions to this problem. A variety of technologies and reduction strategies must be adopted. Congress can provide the major milestones so areas will know whether they are progressing quickly enough on the path to attainment.

To those who argue that the milestones are too tough for attainment in 5 years or 10 years, I will ask, when do you plan on complying with the law?

To those who say they should not be responsible for their reductions, I will ask, who will control their emissions if you do not control yours?

The longer we wait to deal with this problem means the longer it will be that millions of Americans continue to be exposed to pollution at levels even this EPA considers to be unhealthy.

This legislation is not a perfect solution, but it has the important goal of making our air safe to breathe as soon as possible. That goal is never popular among those subject to regulation. But compromises necessary to reach that goal are never popular among those protected by such regulations.

The health data is compelling. Air pollution is the third leading cause of lung damage, after active and passive smoking. In this country, we spend $16 billion each year on health care costs associated with air pollution and another $40 billion on loss of worker productivity associated with air pollution.

The conclusion is inescapable. We must act and we will. I am today announcing that we will schedule a markup on pending Clean Air legislation on June 29, June 30, and July 1. It is my hope that we will have legislation in place before the nonattainment deadline of December 31, 1987.

As I said this bill is not intended to be a perfect solution and we look forward to the testimony of the many witnesses today on how we can improve it as we seek to achieve our common objective. As our first witnesses today, we are pleased to have the two distinguished Senators from the State of California, Senator Cranston and Senator Wilson.

Senator Cranston, we will begin with you and we look forward to hearing from you.

STATEMENT OF HON. ALAN CRANSTON, U.S. SENATOR FROM THE STATE OF CALIFORNIA

Senator CRANSTON. Thank you very much, Mr. Chairman.

I am delighted to have this opportunity this morning to testify before this committee regarding the language in S. 1351, extending the jurisdiction of the Clean Air Act to cover the outer continental shelf and reduce the effects of OCS air pollution on the air we breathe onshore.

I would like to commend you, Mr. Chairman, for your very, very effective leadership in dealing with this issue of clean air and for the cooperation of your committee members.

I also want to thank my distinguished colleague from California, Senator Pete Wilson, for his commitment and leadership on this matter.

I would also like to mention that Congressman Mel Levine of California introduced a bill last week which regulates emissions from offshore vessels. I believe his bill has merit and my staff is examining it now. Possibly this is a matter for which all our staffs can meet to see if certain provision of Congressman Levine's bill might be incorporated into S. 1351.

Jurisdiction of our offshore air quality has been a long-standing problem in California. It has grown more severe under this Administration as the Department of Interior which currently is charged with overseeing offshore air quality has embraced a policy of energy development regardless of its environmental consequences. We are now quickly approaching a situation where, if OCS impacts are not fully mitigated, onshore industrial sources are faced with the burden of further controls or even a halt to further development.

This problem stems from the inherent conflict of interest vested in the Department of the Interior which has jurisdiction over both offshore oil and gas development and regulation over offshore air quality. Studies have concluded that OCS development activities significantly impact onshore air quality and impede local efforts to attain applicable ambient air quality standards.

Furthermore, the Department of Interior has failed to take into consideration the cumulative impacts of offshore facilities. While individually an offshore oil rig may meet the non-stringent standards imposed by Interior, the cumulative effect of a number of platforms can prevent a certain onshore area from meeting ambient air quality standards.

While onshore businesses and citizens face more drastic emission reduction regulations, offshore production will not be effected and platform operations will continue to exacerbate the onshore air quality problem unless this bill is passed.

The Department of Interior, in its haste to exploit our offshore oil and gas resources, will, in fact, hamper future oil and gas development. Onshore support facilities and refineries will have to compete for almost nonexistent onshore offsets and face further control requirements as a result of activity on the outer continental shelf.

When Congress established the Clean Air Act, I helped make sure that States had the ability to adopt standards stricter than Federal standards. The current Interior regulations do not require controls to assure that more stringent State air quality standards be met. Many believe this lack of providing for stronger State standards violates the OCS lands act. I believe it brings to the light the need for S. 1351.

Some groups point to negotiated rulemaking as a solution to our offshore air quality problems. While I am hopeful that the negotiators will come up with a viable plan, we must remember that all parties involved, including the Department of Interior and the oil companies, must consent to it. I am not entirely convinced that the negotiated rulemaking will produce a satisfactory regulation that will fix the current inadequate regulatory system. We need to deal with this problem at its root, not put a bandaid on it.

To illustrate the magnitude of the problem, let me highlight two counties in California-Santa Barbara and Ventura. Over the next decade unsurpassed growth may take place in OCS development in these two counties as a result of Interior's push for offshore oil and gas exploitation.

This development will result in a corresponding explosive increase in offshore-originated air pollution. Nitrogen oxide emissions from projected new OCS and related onshore facilities near southern Santa Barbara County will total nearly half of all current onshore nitrogen oxide emissions.

Furthermore, if you take into account projected tide land platforms, the total offshore emission levels begin to approach total onshore levels. Failure to place jurisdiction of offshore air quality under the more stringent requirements of the Clean Air Act will have a staggering effect on onshore air quality.

Air pollution from OCS activities comes primarily from power generation, transportation and refining activities. Power generating equipment for drilling and pumping operations generally produces the largest amount of pollutants and is perhaps the easiest to control. Tying into the onshore electrical grid where cleaner energy is already produced, or switching from diesel to gas turbines can significantly reduce emissions.

Further reductions could be achieved by relying more on pipelines rather than tanker transportation to shore, or installing tail gas treatment or sulfur recovery units on gas processing facilities. By using more efficient boats, consolidating boat trips to platforms, using turbo-charged or inter-cooled engines, and performing timing changes on engines even further emission reductions could be attained.

Whatever mitigation efforts need to be taken, EPA has the expertise to measure and regulate cumulative impacts and pass responsibility for implementation to the local level. The Reagan Administration espouses a "New Federalism" policy to protect local governments and sovereign States, and their citizens, from overreaching by bureaucracies of the Federal government. Consistent with that stated policy the regulatory bodies of the State and local governments should be supported, not subjected to inconsistent and unwarranted Federal intrusion.

I feel strongly that offshore air quality should be handled by the EPA. That way local jurisdictions will actively participate in the implementation and maintenance of their air quality programs. Allowing the Department of Interior to remain in charge means permitting a new pollution source to circumvent local planning and air quality regulation by locating its facilities just outside State waters.

Passage of S. 1351 will prevent this from happening and will consolidate air quality management under a single agency with both the experience and expertise needed to do the job.

Finally, let me say that OCS platforms should not be permitted to escape the same stringent air quality controls required of onshore facilities. By extending the jurisdiction of the Clean Air Act over the OCS and thereby transferring OCS air quality regulatory authority from the Department of Interior to EPA, both offshore and onshore facilities and industries will equally share the task of reducing air pollution to meet Clean Air Act standards.

I think we have a really undeniable case and I hope very much for support from the committee. I thank you both very much.

Senator MITCHELL. Thank you, Senator Cranston.

Senator Wilson, we look forward to hearing from you.

STATEMENT OF HON. PETE WILSON, U.S. SENATOR FROM THE STATE OF CALIFORNIA

Senator **Wilson**. Mr. Chairman, thank you for the opportunity to appear today to discuss the Clean Air Act.

I wish to thank my friend and colleague Senator Cranston, both for his excellent statement and for the excellent cooperation which he and his staff have extended to me and my staff on our work on this legislation that we hope will be incorporated into your bill.

This is a matter of critical importance to California and to much of the rest of the Nation. I am very grateful to have the opportunity to appear before you this morning, Mr. Chairman.

The greatest challenge facing California overall is how will we deal with the relentless growth that is a fact of life for us. We are now a State of 27 million going on 40 million, by every population projection that I have seen, at sometime around the turn of the century or between then and 2010.

Last year, California's population grew by 2.4 percent. While this percentage figure may sound small, it works out to be a net increase of 623,000 people. Put differently, California's growth in one year exceeded the entire population of the States of Wyoming South Dakota or Delaware.

The resulting strain on the State's infrastructure is beginning to show in almost every way, from overcrowded prisons to inadequate sewage treatment capacity. But the problem that is getting to be the most serious is simply the need for new highways. It is the problem upon which we are focused today.

Real health problems are becoming increasingly prevalent, as your introductory statement this morning so sharply outlined. As this committee knows so well, a leading problem is the dirty air which Californians are required to breathe, particularly in the Los Angeles Basin.

I am told that the Los Angeles Air Basin will not reach Clean Air Act standards in the foreseeable future under the existing air management regime. Inevitably, Southern Californians will have to adopt some fundamental lifestyle changes, if we are ever to achieve a healthy clean air environment.

In that regard, I am encouraged by the leadership shown by you, Mr. Chairman, in your introduction of S. 1351, the Clean Air Standards Attainment Act of 1987. There are several provisions of your bill that are of particular interest to me, and my colleagues can expect to hear from me in the near future on one of the new legislative proposals in particular.

But I am here today to discuss our outer continental shelf air emissions. I was especially gratified to see that the Chairman has incorporated into S.1351 the language of S. 235 which deals with OCS air quality.

Senator **Mitchell**. If I may interrupt the Senator to say, the reason it is in the bill is because it was brought to my attention by the two Senators from California. That should be made clear. Your efforts are the direct cause of that provision being in the bill.

Senator **Wilson**. Thank you. With your permission, I will focus the balance of my remarks on that legislation.

Oil and gas development activity offshore Southern California is a major source of air pollution, but it isn't regulated under the Clean Air Act. Instead, it is the Department of the Interior that has been charged with the task of regulating offshore emissions only to the extent that the Department judges the offshore activity to "significantly affect" onshore air quality.

The reason that I am here today is to tell you that the Interior Department's determination of what significantly affects onshore air quality is so egregiously wrong that the time has come to take OCS air quality regulation away from the Department and give it to the EPA, where it belonged in the first place.

EPA, the California Air Resources Board, and many of the coastal air pollution control districts have consistently criticized the Interior Department for lax air management regulations. For example, the Department of Interior does not require air quality controls or offsets for any facility emitting less than 100 tons of a pollutant a year, even though all California OCS platforms are offshore nonattainment areas in Southern California and even though the prevailing winds bring this dirty air onshore within a matter of hours.

In that regard I have attached to my statement maps that show very clearly the direction of the air currents. You can't see them from there, but they will be a part of my statement for the record.

Neither is the Department of Interior requiring air quality controls on OCS drilling rigs because they have been defined as temporary structures under the Department's liberal three year rule. Temporary though they may be, drilling rigs are sometimes the worst offenders.

For example, if a single drilling rig were located onshore in Santa Barbara County, it would be the second largest single source of nitrogen oxide emission in that county, which is already in nonattainment for ozone. But because that drilling rig is located in Federal OCS waters, there is nothing the county can do to regulate those emissions, even though they are being blown ashore to aggravate the existing nonattainment situation.

The statistic that is often used in the press is the Interior Department's calculation that the emissions from one exploratory drilling rig equal those from seven thousand cars being driven 50 miles. Even more telling is a recent EPA study which concluded that existing offshore operations in the Santa Barbara Channel produce approximately ten percent of the ozone in that county's air basin, and that was on a much better than average day. In fact, on the day of the EPA study, Santa Barbara County was temporarily in attainment.

A ten percent contribution to a bad air quality situation clearly exceeds the standard of significantly affecting onshore air quality. It is significantly adding to a nonattainment crisis. As bad as the existing situation appears to be, it only promises to get worse under the existing regime.

Production from new California OCS oil rigs that are already under construction is expected to quadruple by the mid 1990s. One environmental impact statement has already concluded that putting one planned OCS platform offshore off San Luis Obispo

County is expected to push that county over the edge into nonattainment for ozone.

Mr. Chairman, the answer to this problem need not be an end to offshore oil production. What we do need, however, is to give the EPA the authority under the Clean Air Act to regulate these offshore air emissions. EPA already requires, quite realistically, that local air pollution districts take into account the added impact of offshore emission in developing their onshore air quality management plans.

What is totally unrealistic is that these local districts have no authority to regulate Federal OCS activities. Consequently, onshore industry is required to mitigate that much more to make up for the OCS air emissions. Now, this simply isn't fair.

In a 1985 letter to the Interior Department, EPA stated that source control requirements were falling disproportionately on onshore sources, and that "onshore industrial growth may thus be precluded by the impacts of offshore development."

It has been argued by energy interests that this double standard should be tolerated in the interests of national security. But, as one of many examples, McDonnell-Douglas in Orange County does vital work in the interest of national security and they don't get a break under the Clean Air Act. Why should the offshore oil industry.

Mr. Chairman, the response of the Interior Department to this situation has been less than adequate. In fact, there has even been some backsliding. In lease sale 73 in 1983, the Interior Department reached an agreement with the California Air Resources Board to power offshore platforms under that lease sale by electric cable laid from onshore power sources.

This was a very positive step by the Interior Department but, regrettably, DOI has since reneged on its commitment. Despite repeated requests by interested parties, the Interior Department has refused to include similar language in their recently proposed five year OCS plan governing all lease sales for the next five years. Instead, the five-year planning document contains only a vague commitment to address the air issue on a case-by-case basis.

The most recent development on the OCS air question has been the advent of negotiated rulemaking or what has come to be known as reg-neg. Reg-neg is an outgrowth of a suit brought by the State of California against the Interior Department alleging inadequate air quality control regulations.

Begun last September, reg-neg is expected to wind up by the end of next month. It involves representatives of the Interior Department, EPA, the State, the Oil industry, and environmental groups. Their goal is to reach a consensus on new Interior Department air quality regulations.

Quite frankly, I am not optimistic that a consensus will be reached by these groups. Even if it is, whatever they agree to will not be final, but will be published only as a proposed rule by the Interior Department, subject to change by the Department when published as a final rule.

Given the Department's record on the issue of clean air, I would feel much more comfortable if it were the Environmental Protection Agency instead of the Interior Department that was charged with the responsibility of implementing whatever is agreed to in this reg-neg process.

In any event, we will know by the end of July whether reg-neg produces anything, and adjustments to your Clean Air Bill, S.1351, can be made at that time, if warranted.

I have only one minor change to suggest to the OCS air quality section of your bill, and I propose it at this time for discussion purposes only. Clean air offsets, as my colleague Senator Cranston has pointed out, are becoming increasingly scarce in Southern California, especially in the relatively non-industrialized areas.

Recognizing this, perhaps we should allow for a different kind of mitigation that involves payment of monies into a central repository for use in clean air programs. Such a fund would serve the purpose of allowing the offshore industry to pay into this fund in the event that onshore offsets are unavailable.

The fund could be used for a variety of clean air purposes, such as helping to finance ride-sharing programs or helping to convert a fleet of cars to methanol, doing something that would produce a net increase in the quality of the air. I am informed that a mitigation fee program is not authorized under existing law, so I have attached suggested language to my testimony.

Let me emphasize that this language is only intended to stimulate discussion on the subject of the availability of offsets, and that I look forward to working with the committee further on any kind of a mitigation fee proposal, if it is the committee's determination that it can be useful.

With that, let me close by saying simply that it doesn't make sense to treat a major polluting emission source in a nonattainment air basin any differently just because it happens to be located in Federal OCS waters. Oil platforms located in State waters within three miles of shore are covered by the Clean Air Act. Why should a platform located 3.1 miles offshore in Federal waters be regulated any differently?

Let us dispense with the fiction that there exists some kind of invisible wall that separates OCS air from onshore air and make the Clean Air Act whole with regard to all air. In support of my position, I would like to submit for the record statements by California's Attorney General, the Honorable John Van de Kamp; the Santa Barbara County Air Pollution Control District Officer, Jim Ryerson; and my colleague from Newport Beach, Congressman Bob Badham, who is carrying OCS legislation identical to S. 235 in the House.

Mr. Chairman, I thank you for your time and I thank you for your interest in this subject. We are very grateful in California that you have made this a priority of this committee.

Senator MITCHELL. Thank you very much, Senator Wilson, for a very fine and informative statement.

Are there any questions for either of the two Senators?

If not, thank you both and we look forward to working with you in this important area that is of particular significance to the people of California.

Thank you very much.

Senator WILSON. Thank you, Mr. Chairman.

Senator MITCHELL. Before we call the first panel, I am pleased to note that we have been joined by Senators Baucus and Chafee.

Senator Baucus, do you have any opening statement you would care to make?

Senator BAUCUS. No. Thank you, Senator.

Senator MITCHELL. Senator Chafee?

Senator CHAFEE. No. I don't, Mr. Chairman, thank you.

Senator MITCHELL. Then we will call the next panel of witnesses. Mr. Ken Hagg, the Commissioner of the Department of Environmental Quality Engineering, the Commonwealth of Massachusetts; Mr. Norton Younglove, Chairman of the Board of Supervisors, Riverside County, California; and Mr. Leonard Verrelli, Manager of the Air Quality Program, Department of Conservation of the State of Alaska.

Good morning, gentlemen. For your benefit and for the benefit of all the subsequent witnesses, I want to restate the committee's rules which are that your written statements will be inserted in the record in full. We ask that you provide an oral summary in five minutes or less in your testimony here this morning.

Although we have been generally tolerant in the past of that deadline, with 21 witnesses scheduled today in fairness to the witnesses and to the Senators involved, I am going to announce right now that we will enforce that rule rigidly.

When the green light is on you are free to keep talking. The orange light indicates that you have a brief time left and when the red light comes on, I ask you, out of courtesy for others, to please terminate your remarks.

With that, we look forward to hearing from you and we will begin in the order listed on the agenda.

Mr. Hagg?

STATEMENT OF KEN HAGG, DEPUTY COMMISSIONER, DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING, STATE OF MASSACHUSETTS, ON BEHALF OF THE NATIONAL GOVERNORS ASSOCIATION

Mr. HAGG. Thank you.

Good morning, Mr. Chairman and members of the committee.

I am pleased to have this opportunity to testify on behalf of the National Governors Association regarding one of the most immediate and pressing environmental problems facing the nation today, the attainment of the air quality standard for ozone.

The Governors are extremely concerned about the serious health consequences brought about by continued nonattainment of the ozone standard, by the economic penalties that States will suffer in the form of Clean Air Act sanctions and by the extended period of time that the EPA has taken to provide States with some of the tools that we need to do our jobs more effectively.

It was for these reasons that this past winter the Governors adopted a new section to their Clean Air Act policy, which deals specifically with the issue of ozone attainment.

The Governors' concerns on ozone are driven in large part by the serious health dimension to this problem. There is strong scientific evidence that the exposure to ozone at concentrations at or above Federal standards does, indeed, adversely affect public health.

I would also note that the economic or so-called welfare effects of these pollutants, particularly ozone, are also serious. I believe the facts establish ozone nonattainment as an environmental and human health problem of national concern.

The Clean Air Act of 1970 provides a regulatory framework in which we can deal with this problem. The Governors do not believe that the nonattainment provisions of the act need major revision.

Under the current law there has been significant progress toward attainment of air quality standards to protect health. The lessons that we have learned in carrying out the Clean Air Act mandates provide valuable assistance in determining where we go from here. The bill drafted by Senator Mitchell takes cognizance of those lessons.

What is important now is to look forward, to avoid finger pointing, and to get on with the needed effort by Congress, by EPA, the States and localities, and all of this in the context of a nationally comprehensive ozone control strategy.

Clearly, States and localities must implement and enforce previous commitments or face sanctions under the law. Just as clearly, attainment deadlines need to be extended for areas that are willing to adopt additional necessary controls.

I would like to summarize some of the details of the Governors' position. First, we recognize that not all States and localities have submitted adequate air quality plans or implemented them in an optimum manner.

Most State and local agencies have earned high marks in EPA's most recent program audit, and some areas have gone beyond what is required in law in their efforts to reduce ozone, but there are, indeed, some areas which have not done an adequate job.

There are many reasons for this situation including insufficient resources, but in any event, we expect that States and localities will meet the requirements of law and honor their commitments. Those who do not should be subject to sanctions, though we believe that the sanctions should be tailored to the magnitude and nature of the particular failure.

Sanctions are important; however, we believe it is important that sanctions only be imposed for failing to try, not for trying and failing. Areas that have developed and implemented approved air quality plans should not be subject to sanctions. Additional control measures may need to be applied in such areas, but sanctions are not necessary to that effort.

A second important element in your consideration must involve deadline extensions. We believe EPA should be authorized to provide an extension for up to a statutorily specified period for areas with severe and persistent air quality problems. For an area to qualify for an extension, increasingly stringent control strategies would have to be implemented over time.

The provisions introduced by Senator Mitchell to extend deadlines, as certain additional control measures are implemented, are consistent with those recommendations. Also, consistent is the recognition that some areas will require longer than others to attain the standard.

However, we do not believe that the most seriously polluted areas of the country can reasonably attain the standard within the extra 10 years provided under that bill. For those areas, we will need to identify a program to provide steady progress towards attainment over a longer term.

We want to compliment the sponsors of this legislation for recognizing that not all areas can achieve the standards at the same time and for allowing differential attainment dates. We believe, however, that the bill could be improved by providing that areas get the 10-year extension when they fail to attain the standard despite good faith efforts and that that automatically come into effect.

One last element that the Governors believe to be important in controlling ozone involves the expeditious consideration of additional motor vehicle control measures. This would include such measures as gasoline evaporation standards, more stringent regulation of heavy duty vehicles, upgraded automobile inspection and maintenance programs nationwide, onboard control of automobile refueling emissions.

Senator MITCHELL. Could you sum up, Mr. Hagg.

Mr. HAGG. Thank you very much.

Senator MITCHELL. That is the kind of summary we like, Mr. Hagg. Thank you very much.

Mr. Younglove.

STATEMENT OF NORTON YOUNGLOVE, CHAIRMAN, BOARD OF SUPERVISORS, RIVERSIDE COUNTY, CA, ACCOMPANIED BY JAMES LENTS, EXECUTIVE DIRECTOR, SOUTH COAST AIR QUALITY DISTRICT, EL MONTE, CA

Mr. YOUNGLOVE. Mr. Chairman, Members of the Committee. My name is Norton Younglove, Supervisor for Riverside County, and Chairman of the South Coast Air Quality Management District Board, which encompasses all of the counties of Los Angeles, Orange, Riverside, and non-desert portions of San Bernardino. I have with me today, Dr. James M. Lents who is the Executive Officer.

The over 12 million people of our basin face the most serious air pollution problem in the nation. We in the South Coast Basin want to focus our efforts on a positive approach. We intend to develop an attainment plan, rather than a nonattainment plan.

Mr. Chairman, we congratulate you on the introduction of S. 1351. This bill provides a creative mechanism for addressing the unmet air quality needs of the country. It should be recognized that the annual emissions proposed, when considered in the perspective of today's available technology, represent an exceptionally ambitious undertaking.

While we recognize that attainment of the goals is predicated to a major degree on the development and implementation of certain technological breakthroughs, we feel that it is a major step in the right direction and can, in the near term, be accomplished. We support this bill and urge its earliest possible adoption. We do have some suggestions that we believe would make the bill more workable.

In adding subsection 172(d)(4), we do not understand the value in exempting sources of oxides of nitrogen from reasonably available control technology requirements. In light of the contributions of oxides of nitrogen to ozone, fine particulates, acid deposition, and impaired visibility, we believe that reasonable controls are a minimum requirement for sources of nitrogen oxides in all ozone nonattainment areas.

We endorse the annual emissions reductions concept embodied in subsection 172(e)(B). The public has a right to regular emissions reductions as clean air is pursued. The overall 8 percent annual emission reductions as described in the new subparagraph (b) for organic compounds and oxides of nitrogen may be achievable, although with great difficulty in the South Coast Air Basin.

Unfortunately, the carbon monoxide problem in all nonattainment areas is due primarily to mobile sources. Present fleet turnover rates will not provide the annual 8 percent reduction. A stringent, but more realistic, value should be chosen after evaluating the effects of the new car programs and improved motor vehicle inspection and maintenance. Additional reductions must still be obtained from mobile sources, however, since 50 percent of the stationary source inventory is in solvents and coatings, for which substitutes are not readily available, major emission reductions will be called for by users of these products, particularly the aerospace and defense industries.

Federal assistance is urgently needed to force new technology to meet military and aerospace needs without adversely affecting air quality.

The expectation of a regular in individual stationary source emissions embodied in subsections 172(e)(3) (C) and (E) will be very beneficial to the clean-up process. The present rulemaking process rewards industry for weakening and delaying rules. We suggest that the fee be increased if an industry fails to make progress. We recommend that the requirements with respect to individual stationary source reductions parallel the requirements for regional emission reductions.

It is important that any fees required by this legislation be in addition to, and not in place of, current assessments by States or districts.

The definition added to section 171 for "reasonably available control technology" needs further clarification. The bill should be more specific, including what role economics play beyond noting that it is not the only factor.

We are further concerned that in setting standards for coatings and solvents, EPA is bound by this definition of RACT, but Federal regions and areas vary significantly. As previously stated, we cannot meet the stated goals without new technology.

Because these are national standards, the statute must either specifically authorize State and regional regulations which require a greater degree of emission reductions than the Federal standards, or a national standard strict enough to meet the air quality needs of all parts of the country, the philosophical basis for Federal auto emission standards. We would prefer a national standard.

New source review needs to be looked at in terms not only of the stationary source, but also in terms of its effect on the increasingly serious job/housing imbalance.

We oppose the exclusion of resource recovery facilities from the definition of major source. These facilities have proven to be significant, and controversial, emission sources in the South Coast Air Basin. Site vicinity offsets should be required whenever such sources meet the definition of a major source.

We support the limitations imposed on sewage discharge, encouraging exemption of those that are public health related, but certainly continuing to discourage those growth inducing.

We support the positions very strongly of Senators Wilson and Cranston on the offshore activities. Mobile source standards are essential. We urge you to adopt the most stringent mobile provisions possible.

Mr. Chairman, I have with me Dr. Lents, as I indicated. This concludes my comments, and we would be pleased to answer any questions you might have. Thank you very much for this opportunity to address the committee.

Senator MITCHELL. Thank you very much, Mr. Younglove.

Mr. Verrelli.

STATEMENT OF LEONARD D. VERRELLI, MANAGER, AIR QUALITY PROGRAM, DEPARTMENT OF CONSERVATION, STATE OF ALASKA

Mr. VERRELLI. Mr. Chairman, and Members of the Committee:

My name is Leonard Verrelli, and I am the Air Quality Manager for the State of Alaska. I appear here on behalf of the State and local governments of Anchorage and Fairbanks.

I will be addressing today cold climate emissions and cold start problems. I have briefly reviewed the draft changes to the Clean Air Act, and I would like to meet with your staff to discuss specifics.

While I am here on behalf of the State of Alaska, the cold climate/cold start issues affect many other parts of the country. Fairbanks recently conducted a survey and the preliminary response showed that 23 cities have similar problems. These cities include Providence, Rhode Island; El Paso, Texas; Albuquerque, New Mexico, and others.

Anchorage and Fairbanks, Alaska's two largest cities, are are in nonattainment for carbon monoxide. The State, in concert with the local governments, have been working hard to resolve this seasonal carbon monoxide problems experienced by these cities.

Research has shown that vehicles operating in colder climates, meaning temperatures below 50 degrees, produce pollution at higher rates than realized under the Environmental Pollution Agency's test temperatures of 68 degrees to 86 degrees. These are the temperature limits used in the Ann Arbor vehicles certification test facility.

In other words, most vehicles operating in the real world do not meet EPA standards when the ambient temperature falls below 50 degrees. Because of Alaska's cold climate, emissions are doubled or tripled, causing our cities to be in violation of the national ambient air quality standard.

In Alaska, we have put forth our best efforts to effectively manage our carbon monoxide problem. We have implemented an inspection and maintenance program that has received highly favorable reviews from the EPA. We have incorporated into that programs provisions to check for tampering with pollution control equipment and to test for the presence of lead in the exhaust pipe.

These efforts explain our success in helping to reduce emissions. Anchorage and Fairbanks, after one and one-half years of I&M have realized impressive reductions which we attribute to the combination of newer, cleaner vehicles, inspection and maintenance, and less severe than usual weather.

The I&M program is costing the consumers, and the State and local governments approximately $6 million per year to operate, excluding mechanics' training and the public's time. The implementation of I&M was not an easy task. As you can imagine, it was difficult to persuade Fairbanks and Anchorage to accept an additional Federal program with its substantial costs.

EPA encourages State and local governments to further reduce their ambient concentrations by employing such measures as increased mass transit and ride-sharing. We have tried these transportation control strategies at great cost to the local, State and Federal governments, and we have realized such a small benefit that we do not claim them as a viable strategy in our reasonable further progress report to EPA.

We, Mr. Chairman, are victims of the weather and the foreign and domestic automotive industry, neither of which we can control. Congress recognized the need for cold weather controls and specified in section 108 of the Clean Air Act that the Administrator of EPA publish and make available, within one year after enactment, information regarding the processes, procedures, and methods to reduce or control each such pollutant, including programs to reduce motor vehicle emissions which are caused by extreme cold start conditions.

EPA started to implement the directives of Congress in 1978 by preparing a draft advisory circular that laid out a plan for industry compliance. The plan met with heavy resistance from industry because of the cost of testing vehicles within a controlled environment. In a letter to EPA, General Motors estimated this cost to be about $20 million.

EPA's early attempts at controlling cold start emissions were stalled by lack of Federal appropriations and concerns expressed by the industry. Cold weather states were left without the necessary cold start emission controls, thereby preventing us from meeting a congressional requirement.

Since our attempts to resolve these problems have failed to gain the attention of EPA and the auto industry, the State still faces the ultimate sacrifice, the loss of Federal highway moneys, and other sanctions yet to be determined, because it cannot meet the carbon monoxide standard. The only viable alternative to eliminating the use of motor vehicles in the two major cities of Anchorage and Fairbanks during adverse meteorological conditions is improved performance of automobiles during cold temperature conditions. The technology to resolve the problem appears to be available.

We are not here to try to side-step our responsibility to assure clean air for our citizens. We believe that we have taxed our limited resources to achieve the national goals, and it is again time for EPA and the automotive industry to do their part.

Until such time as Congress and EPA demonstrate the importance of the issue and require the automotive industry to reduce cold weather emissions, Anchorage and Fairbanks, and many other areas across the country which experience similar meteorological conditions, will continue to have difficulty making progress toward carbon monoxide attainment.

In a letter to Representative Waxman, Mr. Richard Joy, the Environmental Engineer for Fairbanks North Star Borough, has summarized in detail the efforts of the State of Alaska and our local governments. This letter provides the background and correspondence between the State, industry, and EPA, which will enable you to review every aspect of the cold emission issue.

[The correspondence referred to has been retained in committee files.]

Senator MITCHELL. Mr. Verrelli, would you sum up, please?

Mr. VERRELLI. I appreciate this opportunity to testify. I will be happy to answer any questions.

Senator MITCHELL. Thank you very much.

We will now go to questioning by members of the committee. In accordance with the committee rules, the first round will be five minutes, and the questioners will be in the order that the Senator appeared at the hearing.

Senator Baucus.

Senator BAUCUS. Thank you, Mr. Chairman.

Gentlemen, you basically said, as I hear and read between the lines, that you are in favor of the legislation that has been proposed, but with some modifications and some revisions that you think would help to fine tune it. One area that you didn't address, however, is whether this bill goes far enough in encouraging or promoting alternate fuels.

I know that the State of California is working on encouraging methane consumption for automobiles. I wonder if you particularly, Mr. Younglove, could address the feasibility of alternate fuels, and whether this bill, perhaps, should be amended to further encourage the development of alternate fuels.

Mr. YOUNGLOVE. Yes, thank you. We would be very pleased if it were amended to give more attention to that area. In our air basin, with much the most severe ozone problem, besides the stiffer standards on automobiles, we also will need some fair degree of conversion to methanol or equally cleaner fuels.

We have in California, as you apparently know, a bill by Assemblyman Leonard that would require the phasing over a period of years of vehicles by the major automotive manufacturers of methanol vehicles, and in addition, after several years, the requirement of service stations that pump 600,000 gallons a year or more of fuel to install methanol capability. In the case of our situation, at least, this is going to be a very important part of actually achieving attainment.

Senator BAUCUS. Could you expand on that last point, that is the degree to which you believe that methane, for example, will help the L.A. Basin achieve attainment?

Mr. YOUNGLOVE. There is no question about that. It is a great deal cleaner burning fuel in terms of those air pollutants that are of most concern to us. There is a small technical problem in relationship to formaldehyde, but we are convinced that that is totally solvable. In fact, it is less than some other products right now.

My own county, as a matter of fact, is utilizing, on some buses, methanol, and on a part of our automotive fleet, in order to prove out the technology. I am convinced that it is necessary.

Senator BAUCUS. What about ethanol?

Mr. YOUNGLOVE. Ethanol is another good product, not quite as good, as I understand it, as methanol. Our basic concern would be, frankly, that the legislation, to the extent that it addresses this, requires methanol or cleaner. I would not want to limit it to one single fuel because certainly anything that burns at least as clean as, if not cleaner, ought to be perfectly satisfactory.

Senator BAUCUS. The advice you have for this committee is to encourage the development of methanol, ethanol, or other alternate fuels. Could you give us more precise guidance as to how far you think we should amend this bill in encouraging the use of alternate fuels?

Mr. YOUNGLOVE. Ethanol does, incidentally, I am reminded by our Executive Officer, assist in the formation of ozone because of its carbon monoxide production. So we have either an ozone or a carbon monoxide problem. Ethanol is not a good answer.

One of the best answers, still some distance away probably from practical regular use, is hydrogen, but it is much closer than most people realize. Electric has some considerable advantages in that the electricity can be produced outside of the non-attainment area and utilized in the attainment area.

Really, the only thing I can say is that because of the massive number of our population, the mobility of our population, we are going to need some utilization of alternate fuels. Extremely important also, frankly, is cleaning up the diesel and the diesel engine.

Senator BAUCUS. What is the status of the California proposal? You said that a bill was introduced. How far along is that procedure?

Mr. YOUNGLOVE. It has passed out of its initial committee. It has to go before the Natural Resources Committee.

Senator BAUCUS. The question is the degree of probability that it is going to become law.

Mr. YOUNGLOVE. I would say that the odds are slightly better than even. There has been very strong industry opposition from certain industries.

Senator BAUCUS. Do either of the other witnesses have comments on encouraging the use of alternate fuels?

Mr. VERRELLI. Yes, sir. The State of Alaska did some tests on ethanol for 2 years under cold temperatures, and we found that we got about a 10 percent reduction using ethanol.

The problems that we understand are associated with it would be the availability. If the car has to be tuned for ethanol, and it goes from one station that has ethanol to another that doesn't have ethanol, there could be problems with higher emissions later on. There would almost have to be an outright mandating of alternate fuel once you do switch.

Mr. HAGG. The NGA has called for expeditious consideration of a number of additional motor vehicle controls. It is clear that the motor vehicle is a key element to controlling ozone, and to the extent that alternate fuels is a solution, I am sure that that should be a part of that solution.

Senator BAUCUS. Thank you.

Senator MITCHELL. Thank you, Senator Baucus.

Senator Chafee.

Senator CHAFEE. Thank you, Mr. Chairman.

Mr. Verrelli, in your statement, you talked about the I&M program, and how vigorously that has been enforced, and it is expensive, but you think that it has done some good.

Mr. VERRELLI. Yes, sir.

Senator CHAFEE. I would like to ask Mr. Younglove what his views are on an I&M program in his area. Have they used that effectively?

Mr. YOUNGLOVE. Yes, sir. We very much supported it, and were of material assistance in getting its passage. It has made a great deal of difference. This bill, incidentally, would call for annual inspection. The California program for semi-annual inspections. Our estimate, if I recall correctly, is that we could achieve approximately 15 percent additional gain with annual as compared to semiannual.

Mr. LENTS. Yes. We think that considerable improvements can be made in the existing program, but we are supportive of the concept.

Senator CHAFEE. I missed that. You would do better on an annual.

Mr. YOUNGLOVE. Yes.

Mr. LENTS. He meant a biannual program. We presently have a biannual program.

Mr. YOUNGLOVE. Our current program is every other year. This bill calls for every year, and we support this bill. It would be a step in the right direction.

Senator CHAFEE. The real problem, it seems to me, lies in the reduction in the number of vehicles. With how much enthusiasm have you tackled that problem?

Mr. YOUNGLOVE. With a great deal of enthusiasm personally. One of our basic problems is that the housing/job relationship is increasing in vehicle miles traveled rather than decreasing. One of the things that we have to accomplish in our basin, if we are to get the air cleaned up, is reducing that job/housing travel distance.

Senator CHAFEE. Do you have carpool express lanes?

Mr. YOUNGLOVE. Yes, sir, not nearly as many as we should, but yes.

Senator CHAFEE. Are you able to police it, and does it work?

Mr. YOUNGLOVE. That is a subject of considerable controversy in some areas. It works, obviously. There are some express safety concerns, partly because several of those lanes are retrofitted and don't meet the normal width standards. If you have a significant difference in speed, those single occupants are all jammed up going zero miles an hour, and a lack of jamming up in the others, then you have 60-mile-an-hour cars immediately adjacent to five-mile-an-hour cars, so there is the safety potential. That is where the strongest concern has been expressed.

Senator **Chafee**. Fine.

Thank you, Mr. Chairman.

Senator **Mitchell**. Thank you, Senator Chafee.

Senator Stafford, do you have any questions?

OPENING STATEMENT OF HON. ROBERT T. STAFFORD, U.S. SENATOR FROM THE STATE OF VERMONT

Senator **Stafford**. Thank you, Mr. Chairman. Rather than ask questions, I have a statement I would like to make at this time.

Senator **Mitchell**. Go right ahead.

Senator **Stafford**. Mr. Chairman, this is a point that we always like to reach in writing legislation. It is the beginning of the end of hearings, the culmination of our efforts, and the production of legislation.

For 6 months during this Congress, and for three previous Congresses, this committee has struggled to produce a bill that would not only extend the Clean Air Act, but also improve it. The bill before the subcommittee would do just that. I expect that virtually every witness today, at least the majority today, tomorrow, and Friday, will oppose some or all of these proposals.

The subcommittee will be asked to do many things, but what we will be asked to do most often is to do nothing. We will be asked to do nothing at a time when the evidence of air pollution, and its damage, continues to greater and more threatening proportions.

Witnesses have told our committee that air pollution is the third leading cause of lung disease in this country, trailing only smoking, and perhaps some workplace exposures.

If we were able to hear from the witnesses originally scheduled to testify tomorrow, the subcommittee would hear that scientists attribute between four and five percent of the excess deaths in this country to air pollution. Other witnesses were ready to testify that as air pollution levels rise, so do emergency room admissions for lung diseases.

In New England, lakes and streams are being killed by acid rain. In the South and Middle Atlantic, there are reports of declines in striped bass, blue-back herring, and other fish, also due to acid rain.

The forests are in decline—red spruce and sugar maples in New England, yellow and white pine in the South, oak in the Midwest and Middle Atlantic. Air pollution may or may not be the cause in each case, but in every one of them, it is one of the handful of possibilities being examined by scientists.

The true nature of these pollutants is masked by their scientific names, but in plain English, the truth of the matter is that day in and day out, we are all bathed in an atmosphere of bleaches and acids, with a dose of artificial growth stimulants and some toxic chemicals thrown in for good measure.

The American public prefer their air to be clean, and their water to be pure and, more importantly, they are willing to pay the price.

They have told us that in clear terms. But despite the willingness of the American people to foot the bill for the sake of their children and their country, there are those who think that we have gone far enough, or they say that we should stop the clean ups just short of where they now stand.

This Senator believes that this is one Nation. Children in the Midwest deserve protection as much as those in New England, so do the forests and the crops, as well as the buildings and the lakes. Industry should not have the environmental option to flee from one pollution haven to another, setting up a chain reaction of regulations, always a step or two behind the stream of pollution.

For each witness today and tomorrow who urges this subcommittee to take no action, or to stop just short of where we are, I have but one question. Where do we turn? To the autos? To the gas stations? To the petroleum tank firms? To the smokestacks?

The subcommittee proposals answer many of these questions, and by and large, we believe, the answers are fair, but there will still be criticisms, we know. It is this Senator's hope, however, that our witnesses today, tomorrow and Friday, will offer not just criticisms, but solutions to the problems which we face.

Thank you, Mr. Chairman.

Senator MITCHELL. Thank you, Senator Stafford.

I don't have any questions, but merely an observation. It is gratifying, Mr. Hagg, to have the support of the Governors. They are, after all, the executives who will be deeply involved in this process, and to have their endorsement of this bill, with some very constructive suggestions in your statement gets us off to a good start.

I want to make one note, clarify one point in your testimony. You said, at page 4,

> We do not believe that the most seriously polluted areas of the country can reasonably attain the standard within the 10 extra years allowed under the Mitchell bill.

Actually, as you know, under S. 1351, attainment is not required within 10 years. It requires that areas meet certain specified control requirements. This was drafted precisely because we recognize that some areas will not be able to meet the attainment goals within 10 years.

We are grateful for your testimony. We look forward to working with the Governors in this important area.

Mr. Younglove, and Mr. Verrelli, we appreciate very much your testimony, and we look forward to working with you.

Thank you very much, gentlemen.

Mr. HAGG. Thank you.

Senator MITCHELL. The next witness is Governor John Sununu of New Hampshire.

Good morning, Governor, and welcome.

For the members of the committee, let me say that although today's hearing is on nonattainment, and we have scheduled a hearing on acid rain tomorrow, Governor Sununu was unable to attend tomorrow's hearing. To accommodate him, we have scheduled his appearance this morning. His testimony will be on the subject of acid rain, and it will be inserted in the record of that hearing.

[In accordance with Senator Mitchell's directive, Governor Sununu's statement and testimony may be found in the proceedings of the hearing held on June 17, 1987 beginning at page 479.]

Senator MITCHELL. The next panel of witnesses includes Mr. Michael Walsh, Mr. Vic Rasheed, Mr. Donald Randall, Mr. Julian Morris, Mr. Jeffrey Leiter, and Mr. John Walluch.

Good morning, gentlemen, and welcome. We look forward to hearing from you. We will begin and proceed in the order listed in the agenda. I emphasize again, and ask all witnesses to limit their oral remarks to 5 minutes. Your full written statement will be placed in the record.

Mr. Michael Walsh is a technical consultant from Arlington, Virginia, who has appeared before this committee before. He is a valuable source of information and advice to the committee.

Mr. Walsh, welcome.

STATEMENT OF MICHAEL P. WALSH, TECHNICAL CONSULTANT

Mr. WALSH. Thank you, Mr. Chairman.

My name is Michael Walsh, and I am an independent technical consultant in the motor vehicle air pollution control field. From 1974 to 1981, I was with the Environmental Protection Agency, and for the last three of those years, I was the Director of the Motor Vehicle Program. I am presenting this statement as a private citizen, not representing any government agency or company.

I will not dwell, in the interest of time, on the need for greater controls of motor vehicles, but only mention in passing that it appears to me to be an overwhelming need in light of the health and environmental problems that we do face.

Automobile standards have been reduced very significantly over the last 20 years, especially for hydrocarbons and carbon monoxide, and to a lesser extent for NO_X. Unfortunately, emission reductions from other vehicle categories have been significantly less stringent than from autos.

For example, even though light trucks have many identical components to cars, and are used in many of the same ways, their emission standards are two to three times as high. Heavy trucks, especially diesels are only starting to introduce significant advances.

The overall reductions in emissions from transportation sources across the entire country during the last decade were 88 percent for lead, our biggest success story, 25 percent for carbon monoxide, and 30 percent for hydrocarbons. These reductions occurred despite a 26 percent increase in the vehicle miles travelled during the same time period.

For carbon monoxide, I must note that the reductions in the crowded central business districts, where ambient CO levels tend to be the highest, were greater than the nationwide emission reductions. However, overall reductions from transportation sources for NO_X during the last 10 years have only been one percent, and for particulate there has been no reduction. In fact, during the last 2 years, according to the latest EPA estimates, NO_X emissions from transportation sources increased by 300,000 tons.

Transportation sources today are still responsible for most of the carbon monoxide. About one-third of the hydrocarbons, and almost one-half of the NO_X. In some cities, the mobile source contribution is even higher. Therefore, significant reductions of these pollutants from mobile sources have the potential to result in substantial overall environmental and air quality improvements.

The standards contained in the bill, in my view, are not only necessary, but also technologically feasible. Many vehicles already certify to these levels. For most of the others, either EPA or California have adopted the requirements after finding that they are technologically feasible. In a few cases where they have not been adopted, one or the other of these agencies has found them to be feasible.

Going first to cars. Approximately half of the vehicles certified for the 1987 model year already meet the standards contained in the bill. While certification alone is only the first step in showing that vehicles will meet standards in use, especially with the 100,000-mile useful life requirement, it does establish the fundamental capability of the design.

To achieve good in use performance, this design must be carefully translated to large numbers of vehicles on the assembly lines, using high quality components. Greater quality control efforts, which no doubt will result from the tighter assembly line requirements contained in this bill, should help in this regard.

In addition, lower trace lead levels in unleaded gasoline, and more advanced emission control components, particularly more durable catalysts, better air fuel management systems, and electronics, will help.

CARB made the same point recently in a letter to Senator Chafee. California has already adopted the 0.4 NO_x standard for passenger cars. They have testified before this committee that the 0.25 hydrocarbon standard is feasible and cost effective. There is no conflict between the higher NO_x standard and carbon monoxide either. California has pointed out that 109 out of the 120 engine families that had certification levels this year below 0.4 NO_x also were below 3.4 CO.

Jumping to trucks, the diesel truck NO_x standard can also be reduced to the levels in the bill, and low polluting alternative fuels, such as methanol and natural gas, are available to solve the heavy-duty NO_x and particulate problems if diesel engine control technology cannot be cleaned up.

The environmental impact, the standards contained in this bill will reduce NO_x from 34 to 40 percent from transportation sources alone. The hydrocarbon standards, along with the useful life requirement, will bring about a 20 percent reduction in motor vehicle hydrocarbon emissions. The inspection and maintenance provisions are also very helpful in expanding the control from HC and CO to NO_x.

In conclusion, it has been 10 years since the Clean Air Act has been amended. It seems reasonable that the provisions adopted now will set the framework for the rest of this century in terms of our motor vehicle control and our national control effort.

Improving the existing program is necessary not only to address existing problems but to deal with some new problems. Technological and programmatic solutions exist to address these problems, but they won't be implemented unless Congress makes them be implemented.

Thank you very much.

Senator **MITCHELL**. Thank you, Mr. Walsh.

Mr. Rasheed, welcome. We look forward to hearing from you.

STATEMENT OF VIC RASHEED, EXECUTIVE DIRECTOR, SERVICE STATION OWNERS OF AMERICA, ACCOMPANIED BY JAMES DASKAL, COUNSEL

Mr. **RASHEED**. Thank you, Mr. Chairman.

My name is Vic Rasheed. I am the Executive Director of the Service Station Dealers of America. Ours is an industry that does support this bill with one minor caveat.

Senator **MITCHELL**. You have us worried right there, Mr. Rasheed. The refiners have a caveat. The auto manufacturers have a caveat. You have a caveat.

Mr. **RASHEED**. Knowing your reputation for understanding, Senator Mitchell, I am not worried about this one.

The Nation's service station dealers are frustrated with EPA's and Congress's failure to make a decision to control vehicle emissions.

We feel that the service station dealers would be required to pay the price for a crime that they did not commit by having redundant Stage II controls forced on them by this bill, whereas EPA and Congress are at fault for not dealing with this issue during the past 13 years that we have urged both bodies to do so.

The delay also means that dealers would have to pay for Stage II at the same time that we are trying to comply with an array of environmental regulations. These include underground petroleum storage tanks under RCRA, used oil under RCRA and TSCA, small quantity generator hazardous waste rules under RCRA, small quantity generator storage tanks under RCRA, asbestos regulation under OSHA, worker right to know under OSHA, Title III community right to know under SARA, State regulations, including super lien laws, which make obtaining financing difficult, if not impossible.

At the same time, to assist in the battle for clean air, we have pushed stage one on more than 70 percent of our stations across the country. We are the backbone of our nation's inspection and maintenance system, and we do support the enhanced I&M program. We think that it is a good program and should be pushed in areas where we don't have it at this time. Also we do support the development of alternate fuels.

The public policy issue is how to direct this industry to direct its limited resources in a way to protect human health and the environment. These resources are better spent in areas of upgrading underground storage tanks, rather than on wasteful and redundant measures such as Stage II.

Stage II as an interim measure makes no sense. This option was heavily criticized in comments to EPA by States and other commentators. Stage II cost effectiveness doubles in light of implementation of volatility controls, and on-board from $2400 a ton to $5083 a ton, with reduced volatility and on-board canisters.

Stage II costs alone would cause at least 20 percent of affected stations to close, with a loss of thousands of jobs. Also lost would be important price competition in gasoline marketing as independent dealers would be wiped out, leaving the market to outlets owned and operated by major oil companies.

Despite the great expense, Stage II would produce no short term environmental benefit. For example, in New York, implementation of Stage II would not produce a measurable reduction in ozone, as the reduction would be within the zone of error of the monitor.

Even if no volatility controls were enacted, Stage II alone among control measures is redundant. For example, volatility controls reduce the amount of VOC achievable by Stage II by 11 percent. Stage II is not effective. EPA has recently revised estimates of Stage II effectiveness to a range of 49 to 69 percent.

The bill as drafted would force many areas to adopt Stage II even though they will come into attainment over the five-year period due to vehicle fleet turn over and other factors.

The Stage II requirement should be deleted from this bill. Its limited application, its expense, and the burden that it would impose on the motoring public make it a counterproductive cure for a problem that is steadily decreasing each year as old cars are replaced in the annual fleet turnover.

The reduction in the percentage of hours above the ozone standard in New Jersey, above 0.5 percent in 1983 to 0.1 in 1986, is an example that is repeated in many other monitored areas.

In conclusion, Senator Mitchell, members of the panel, we do feel this is a good bill, but we do not think that Stage II has a place in this bill. I think that it is redundant.

Thank you.

Senator MITCHELL. Thank you very much, Mr. Rasheed.

Mr. Randall.

STATEMENT OF DONALD A. RANDALL, ATTORNEY, ON BEHALF OF THE AUTOMOTIVE SERVICE ASSOCIATION, INC.

Mr. RANDALL. Thank you, Senator.

We appreciate the opportunity to testify, and we hope that we have a constructive suggestion to offer to the proposals which you will be considering.

ASA represents over 10,000 independent auto repair shop owners throughout the United States. We are deeply concerned about the tens of millions of American motorists who will be subjected to an unregulated monopoly under the hood if you enact the provision which would extend the mandatory Federal warranty in the proposed bills.

The auto repair and service industry's annual sales are estimated to be in excess of $134 billion excluding tires, gas and oil. The franchised new car dealers now perform only about 24 percent of these repairs and services.

This extensive industry is served by a complex infrastructure of auto parts manufacturers and distributors.

New vehicle purchasers have traditionally sought service and repairs from new car dealers only during the effective period of their voluntary competitive warranty. After 12 months or 24 months, owners generally seek service and repairs outside of the franchised car dealerships.

In large part, this owner preference for service from the independent segment is due to price, quality of service and convenience.

Current law provides for a mandatory warranty for five years or 50,000 miles and we already know that this provision is artificially diverting business from our members' shops, and other independent shops, into the car dealerships.

The Clean Air Act language now restricts vehicle owners' options for repairs under these warranties to only the new vehicle manufacturers' dealers. This warranty, mandated by the Federal government, is unique. No other product sold in the United States has such a requirement that ties the purchaser of the product to the manufacturer and its franchised distributors.

The objectives of EPA, the environmentalists and Congress, indeed, the independent repair shops, hoping the automotive manufacturers will build durability into their emission control systems, and to require vehicle owners to keep their vehicles in compliance, can both be met by simply requiring vehicle owners to have them inspected for compliance annually.

Thereafter, if the vehicles are found not to be in compliance, owners can have them corrected or repaired at the repair shop of their choice, and competition can be the best discipline, not a mandated monopoly that discourages innovation and price competition or quality of service.

If Congress wishes to assure that vehicle owners will keep their vehicles in compliance, a system of emission control service contracts can be required. This approach will ensure competition both at the offering level, by the manufacturers and others, and at the service or repair levels. Thus, product innovation, quality and price competition would all be enhanced.

Consumers are confused by the various warranties. Dealers and independent repair shop owners are also confused and quite uncertain about what is and what is not a "covered repair" under these various warranties. Compounding this consumer confusion problem are the car manufacturer and dealer-offered competitive extended service contracts. Further complicating this confusion are the federally required emission control warranties.

Additionally, the State of California's waiver permits that state, with over 10 percent of the nation's vehicle population, to require warranties which vary from those required by the Environmental Protection Agency.

We believe that most vehicle owners misperceive what is covered and what is not covered either under the competitive voluntary warranties or the mandatory Federal emission warranties. Furthermore, we are convinced that neither Congress nor EPA has adequate facts or data to justify making such a drastic and major public policy change in our free enterprise system.

To create an unregulated monopoly system of auto repairs, affecting tens of millions of motorists, will be to inflict enormous unnecessary costs upon the American public. Both the FTC and the Department of Justice have previously agreed with this position. Not only will service and repair prices be set higher by such a monopoly, but serious anti-competitive effects will stifle innovative competition, breed mediocre quality parts and service, and force a concentration of automotive service into larger and larger dealerships.

Before Congress acts to extend this very anti-competitive provision of Section 207, we respeetfully suggest that detailed data and facts, which we have set forth in our full statement, be answered. We believe the burden is upon those proposing this proposal to justify it, and not upon the industry to offset it.

In conclusion, I would say that we hope that the Congress would look carefully at H.R. 1239, which is a House bill, which modifies the Clean Air Act, gives a strong warranty for 24 months, and clarifies the tampering provisions, which very badly needs to be done.

A compromise provision can be adopted, as we suggested in our full statement. We suggest that you look at the provisions of a full service contract, which would promote competition rather a monopoly, and would better serve the millions of new vehicle purchasers and preserve competition in the automotive service industry. The total cost to the motoring public would be far less than under a non-competitive system.

Senator MITCHELL. Thank you very much, Mr. Randall.

We are pleased to be joined by Senator Pressler and Senator Lautenberg.

Senator Pressler, do you have an opening statement?

Senator PRESSLER. No, Mr. Chairman.

Senator MITCHELL. To accommodate Senator Lautenberg, I would like to have him introduce the next witness, who is the Assistant Commissioner of Environmental Management and Control of the New Jersey Department of Environmental Protection, Mr. Deieso.

Senator Lautenberg.

Senator LAUTENBERG. Thank you, Mr. Chairman.

First, I would ask unanimous consent to put an opening statement in the record, which I will not read.

Senator MITCHELL. That will be done.

[Senator Lautenberg's statement follows:]

OPENING STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Mr. Chairman, I commend you for holding this hearing today on ozone nonattainment.

My State of New Jersey is one of over 70 nonattainment areas in the nation. New Jersey, and possibly as many as 44 other areas, are not expected to meet the December 1987 deadline for meeting the ozone standard.

This is a national crisis. Over 100 million people live in current nonattainment areas. Research has identified serious health effects of ozone. These include lung impairment, chest pain, shortness of breath, and inflammation of the airways.

A significant piece of the ozone nonattainment puzzle is interstate migration. The movement of ozone and other air pollutants from one state to another. For states like New Jersey the interstate question is a key.

Mr. Chairman, Assistant DEP Commissioner Don Deieso is here today to testify on behalf of my state. I'm sure he'll have some valuable observations to make on the transport issue and other concerns to the state.

I welcome him, and look forward to the testimony of our many witnesses.

Senator LAUTENBERG. I would like to welcome Mr. Deieso. Don Deieso is the New Jersey Department of Environmental Protection's Assistant Commissioner for Environmental Management and Control. We have worked together in the past on matters affecting radon. He is a very diligent and effective environmental commissioner. We welcome him here, and we look forward to his testimony.

STATEMENT OF DONALD A. DEIESO, ASSISTANT COMMISSIONER FOR ENVIRONMENTAL MANAGEMENT AND CONTROL, NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

Mr. DEIESO. Mr. Chairman, good morning, and members of the committee. Senator Lautenberg, thank you very much.

My name is Donald Deieso, and I am the Assistant Commissioner with New Jersey's Department of Environmental Protection.

New Jersey, as well as others, has provided support to the NGA position with regard to ozone nonattainment. I am, therefore, pleased that Senator Mitchell has drawn so heavily upon those NGA comments, as well as those comments of STAPPA in the amendments to the Clean Air Act.

With ever increasing speed, new environmental issues are being thrust upon States and the Nation. Most of these issues are in response to rapidly developing new technologies, often requiring novel new concepts in emissions control. Nothing deflates our institutional ego more than to appear before you today to confess quite honestly that we have to patch up an old program, and that we in government, both Federal and State, have not succeeded in protecting the public health from a pollutant such as ozone.

The ozone dilemma, as we call it, is before Congress again today as it was in 1982, 1978, 1975, and 1970. Yet now, with sudden fury, the states are besieged by law-suits, EPA is making up for lost time and is rattling the sabres of sanctions in many areas of the Nation, and Congress, after many years of delay, is preparing once again for major changes to the Act.

We must begin by asking why we have failed after for so long. Does it mean that the strategies that have been put in place are less effective than we thought, or are we missing a vital part of the complex smog equation which suggests that these strategies have failed because they are scientifically flawed?

In other words, are we going about the control of ozone in the right way?

These are the questions which confront us again as we face the prospect of increasingly more complex, unpopular, and more costly control measures.

The bill before us today is a strong bill. It assumes that the strategies that we have so far put in place are well directed, but are simply not enough. Such a strong bill is needed if government at all levels is to actually achieve the standard.

The major ozone issues as we see them are, first, the attainment deadlines; second, the transport issue; third, sanctions; fourth, the national versus State control; and, fifth, the ambient air quality standards. Let's look at each briefly.

As any manager knows, deadlines are a most important tool in getting things accomplished. Without commitment and resources, deadlines often lead to frustration The strength of this bill, as we see, it is the inclusion of specific control measures which would be required by the Act. The proposed amendments significantly move from the existing air quality approach to a control based-approach, while still retaining some of the flexibility so needed in those severely polluted areas.

We, in New Jersey, as well as many other States, are in the last year of the existing extension of our Clean Air Act. We believe that Congress must assure that states with approved EPA implementation plans maintain their momentum by fulfilling their existing SIP requirements by updating their SIPs with respect to new deadlines.

The two-tier system, we support, and suggest that it will accomplish what we intend. We believe, however, that there may be several areas in the nation—the New York/New Jersey Metropolitan Area for one—that may not be able to attain the standard even after 10 years. Some ongoing provision should be allowed for these regions as long as they continue to pursue in a vigorous manner tighter and tighter controls.

The issue of transport confronts New Jersey as it does other states, especially in the northeast. Let me elaborate and say that in New Jersey, even if we closed every facility emitting organics and stopped every single automobile on our roads, we would still exceed the ozone standard today, and that would occur from ozone transported in from upwind states.

The amendment before us today authorizes the formation of a commission, with seemingly broad powers to oversee a multi-state compliance plan. We have reservation about the commission. In fact, we suggest that the commission concept would be unnecessary if EPA accepted and fulfilled the interstate pollution provisions of their mandate. We maintain that creating these commissions will simply exchange one procedural obstacle for another. Let's craft language that clearly and simply places EPA on notice of our expectations.

Let's examine next, sanctions. In brief, it is conceived of as a punishment, and instead it should be used as an encouragement for those who would like to plan and take proper responsibility for ozone.

The control measures, let me discuss next, we are encouraged with the way they are presented in the bill. The prospect of individual states developing regulations on consumer products such as hair spray, deodorant, and household cleaning agents is simply unworkable. Control at the national level is more likely to succeed, and this bill requires EPA to do just that.

We applaud as well the on-board gasoline vapor requirement on new automobiles. Apparently, EPA requires the dose of courage that this bill provides on this point.

In closing let me suggest that we recognize that this is the opening encounter of what promises to be a long tumultuous battle for clean air. Judging from the sponsors of the bill, and the committee members, we know that we will be successful.

Thank you.

Senator **Mitchell**. Thank you, Mr. Deieso.

Next we will hear from Mr. Morris.

STATEMENT OF JULIAN C. MORRIS, PRESIDENT, AUTO PARTS AND ACCESSORIES ASSOCIATION, INC.

Mr. MORRIS. Thank you, Mr. Chairman, for the opportunity to testify this morning.

The APAA is a trade association comprised of over 1800 manufacturers, independent manufacturers' agents, distributors and retailers of automobile parts and accessories sold primarily, although not exclusively, in the aftermarket.

The aftermarket is vital to this nation's economy, providing at least double the employment of the vehicle manufacturers and their dealers, and producing, as my colleague, Mr. Randall, said, in excess of $134 billion sales of parts, accessories, and chemicals annually.

The five-year/50,000 mile emission control warranty, passed in the 1977 Clean Air Act Amendments, has been in place for almost ten years. In those ten years, precious little evidence has emerged demonstrating the public or environmental benefit of the warranty itself.

Despite this lack of evidence, and disregarding the anti-competitive effects of the emissions warranty, the committee leadership now asserts that the warranty must be doubled to ten years/100,000 miles in order to reduce in-use emissions of motor vehicles further. We would respectfully disagree with that.

More durable emission systems are actually created at the design and production stages under Federal rules that require 50,000 mile certification of prototype vehicles and assembly line testing.

In reality, what the warranty does create is a psychological bond when the consumer returns to the higher priced and more inconvenient new car dealer out of fear of jeopardizing his warranty.

Like all warranties, the emissions warranty hands the car companies and their dealers another marketing tool to pull in business at the expense of the independent parts and service industry. Although the warranty appears to be a consumer freebie, the cost of what is really a federally mandated service contract is built into the price of the vehicle.

Just as the emissions warranty draws motorists to dealerships for service, so too does the warranty increase the purchases of automakers' proprietary parts for vehicle repairs. Nowhere is this more certain than with import car dealers. These dealers use parts primarily made abroad, not only reducing domestic competition, but also contributing to the $8.16 billion parts trade deficit in 1986.

Most consumers who return to the new car dealer for warranty work also have non-warranty work performed at the same time. Adding insult to injury is the fact that as many as 92 percent of inspection failures are actually caused by improper maintenance or other factors not covered by the warranty.

When a customer learns too late that the repair is not covered by the warranty, the aftermarket loses the opportunity to do both the work not covered by the warranty and the other repair or service work that is done while the customer is at the dealership.

Mr. Chairman, the cost of increasing the emissions warranty will be borne by your constituents, both in the higher costs they will pay for repairs and in the jobs that will be lost, both as a result of fewer aftermarket parts producers and certainly fewer service facilities who can compete with a deck stacked against them.

As an alternative, our association urges this committee to adopt a strongly administered 2-year/24,000 mile warranty combined with a vigorous recall program as a sufficient net with which to ensnare heavy polluters and force their repair by the vehicle manufacturers. The recall threat provides a substantial economic incentive for car companies to produce the types of reliable systems which Congress and our environmental needs demand.

I appreciate the opportunity to appear before you once again, and I will be pleased to answer any questions that you and members of the committee may have.

Senator MITCHELL. Thank you, Mr. Morris.

We will now hear from Mr. Leiter. Good morning, Mr. Leiter.

STATEMENT OF JEFFREY LEITER, ATTORNEY, ON BEHALF OF THE SOCIETY OF INDEPENDENT GASOLINE MARKETERS OF AMERICA AND NATIONAL ASSOCIATION OF CONVENIENCE STORES, ACCOMPANIED BY CHARLES HARMAN

Mr. LEITER. Thank you, Mr. Chairman.

My name is Jeffrey Leiter. I appear today on behalf of the National Association of Convenience Stores and the Society of Independent Gasoline Marketers of America.

NACS is comprised of over 1200 retail company members. The convenience store industry is the fastest growing segment of both the food retailing and gasoline marketing businesses.

SIGMA is made up of approximately 300 chain retailers and private-brand marketers of motor fuels SIGMA members' sales account for nearly 17 percent of the motor fuels sold at retail in the United States.

S. 1351 would make substantial and needed revisions to the Clean Air Act. However, NACS and SIGMA strongly oppose the requirement that an ozone nonattainment area commit to implementing Stage II as a condition for an extension of the attainment deadline.

The gasoline marketers understand that the subcommittee's justification for this provision is that Stage II is a cost effective way to realize hydrocarbon emission reductions, and the at-the-pump controls are an easily implementable interim measure while the vehicle fleet is being equipped with on-board refueling canisters that also would be required.

This justification, while well-intentioned, simply is incorrect. Moreover, even if such justification were correct, there remains a fundamental question of equity, particular where petroleum marketers would be forced to incur non-income producing capital and maintenance costs for Stage II equipment of questionable effectiveness as the result of Congress and the EPA's failure to address the vehicle refueling and ozone attainment issues in a more timely fashion.

The section in S. 1351 concerning deadline modifications, including the requirement for stationary Stage II, appears to be patterned largely after the suggestions made in testimony earlier this year before the subcommittee by STAPPA. STAPPA continues to labor under the false impression that Stage II controls are cost effective.

The group repeated cites, without support, the cost effectiveness estimate of $687 per ton of hydrocarbons reduced for Stage II. This unsupported cost effectiveness estimate is inconsistent with other estimates, including those prepared by EPA.

The agency, for example, in its "Red Border" review package that proposes nationwide on-board controls, estimates the cost effectiveness of stationary Stage II in nonattainment areas, outside of California, at $810 to $1100 per ton.

The agency's calculation does not include consumer inconvenience costs. If an average consumer inconvenience cost of about ten cents per refueling event is added to the calculation, the cost effectiveness estimated by EPA for Stage II increases from $2700 to $3600 per ton.

Based upon the foregoing, NACS and SIGMA challenge the use of STAPPA cost effectiveness estimates in justifying Stage II controls for nonattainment areas. Moreover, the gasoline marketers question the estimate when one considers the broad geographic nature of ozone attainment problems.

S. 1351 acknowledges that the ozone problem is a regional one. Hydrocarbon emissions in attainment areas may be transported through the atmosphere into adjacent nonattainment areas. This complicates a nonattainment area's attempt to reduce exceedances of the ozone standard.

For example, according to New York's Department of Environmental Conservation, the New York City Metropolitan Area was not in compliance with the ozone standard for a portion, only 25 hours, of six days in calendar year 1986. It is estimated that Stage II capital costs for the New York City Metropolitan Area would be $300 million. Such a capital investment, plus maintenance costs, is an enormous burden to place on petroleum marketers for 25 hours of violations in six calendar days, particularly when the air pollution may have been transported across state lines.

NACS and SIGMA do not agree that Stage II controls are easily implementable. The gasoline marketers assume that Stage II has been included in the bill because it is believed that at-the-pump controls can be implemented quickly, while the vehicle fleet is being equipped with on-board refueling canisters.

The subcommittee should not be too optimistic about the time period to install Stage II equipment. NACS and SIGMA estimate that the typical time to retrofit an existing retail gasoline outlet with Stage II is 15 days. For the 4,000 retail gasoline outlets in the New York City Metropolitan Area, estimated to be subject to the New York recently adopted Stage II rule, it would take 60,000 days, or approximately 164 crew years, to install the stationary Stage II equipment in that area alone.

Moreover, it has been suggested that the installation of Stage II could be tied to the upgrading and replacement of underground storage tanks under EPA's pending tank rules. Further, it has been suggested that the linkage of Stage II to the tank regulatory program would reduce the cost of Stage II and thereby improve its cost effectiveness.

EPA has proposed that the upgrading and replacement of existing underground storage tanks take place over a ten-year period. This is a much longer timeframe than envisioned, I believe, by the subcommittee for the installation of Stage II.

A number of commentors at EPA's recently concluded public hearings on the tank rules suggested additional phase in time was necessary due to limits on equipment availability, lack of competent contractors, and problems in obtaining necessary financing.

Another important concern of the subcommittee, although less easily quantifiable, is consumer avoidance and acceptance of Stage II. Despite the development of more consumer friendly Stage II equipment, motorists in nonattainment areas will find Stage II nozzles awkward and unwieldy. An EPA study of consumer habits in Washington, D.C., revealed that motorists will wait in line for a full service pump rather than wrestle with the unwieldy Stage II nozzle.

Senator MITCHELL. Would you sum up, Mr. Leiter, please?

Mr. LEITER. Such higher costs will be borne most heavily by people on fixed incomes such as the elderly and the disabled.

This concludes my testimony.

Senator MITCHELL. Thank you very much, Mr. Leiter.

Mr. Walluch.

STATEMENT OF JOHN WALLUCH, DIVISION MANAGER, ADVANCED VEHICLE SYSTEM DIVISION, SYSTEMS CONTROL, INC.

Mr. WALLUCH. Good morning, Mr. Chairman, and members of the subcommittee.

My name is John Walluch. I am the division manager of the Advanced Vehicle System Division of Systems Control, Incorporated. I greatly appreciate this opportunity to share with you our experience as a provider of contractor operated motor vehicle inspection and maintenance programs.

We endorse the requirements of Senate Bill 1351 regarding I&M programs. We also support the specific cost requirements for waivers, nonattainment area population size, and other programs design requirements specified.

Systems Control, Incorporated, is a computer systems company, located in Palo Alto, California. We currently operate I&M programs in the States of Maryland, Illinois, and Washington. We also control decentralized I&M quality assurance and referee projects for the State of California and the City of Anchorage, Alaska.

Prior to joining Systems Control in 1985, I spent over 13 years in the State of California Bureau of Auto Repair. During my tenure with California, we pioneered many aspects of in-use motor vehicle emission controls inspection and maintenance.

Over the years, I have had personal experience in the private and public sectors with both centralized and decentralized programs. I am thoroughly familiar with their strengths and weaknesses. Based on this experience, my firm conclusion is that the centralized approach is far superior to the decentralized approach in providing I&M effective emission reduction.

The advantages of the centralized system are many in terms of technical capabilities, reliability, effectiveness, cost, consumer convenience, and consumer protection. For example, EPA studies have demonstrated that the decentralized garage operated programs have not achieved their anticipated levels of emission reduction. The centralized State or contractor operated type of programs have uniformly received high marks for their overall superior performance.

I would like to briefly touch on some of the key points of the two types of approaches for providing inspection and maintenance to the motorists.

A centralized program is a high volume operation. Usually between 40,000 and 50,000 vehicles can be inspected each year in a lane. The high volume is cost effective and justifies the state-of-the-art technology such as computer assisted inspected equipment, and the data processing. The systems are standardized. The systems are calibrated automatically and controlled.

The decentralized approach is primarily a low volume system, where 600 to 1,000 tests per year are performed in a garage. Obviously, with this, the use of high technology equipment is limited, and usually you will find them to be manually operated equipment, without any calibration requirements. Uniformity is also lacking. Pass/fail decisions can be subject to human error and tampering.

Costs associated with a centralized type program are obviously low. They typically operate between 40 and 50 percent less than the decentralized approach because of the volume aspect of it. The State administrative costs for I&M programs is lower with centralized in that the enforcement programs are much less, and surveillance of the inspection is more focused on a limited number of stations.

The consumer protection aspects of the centralized program is that the centralized I&M process separates the repair function from the inspection process. This, obviously, eliminates a potential conflict of interests, since the sole function of the station is to perform inspection of the vehicles. This, obviously, cannot always be true in the decentralized process where there is a combination of repair and inspection activity.

I think with this, I would like to terminate the rest of my discussion. I would like to thank the committee for their attention, and answer your questions at the appropriate time.

Senator MITCHELL. Mr. Walluch, ending before your allotted time enhances your credibility with the committee. I can assure you that we are going to pay close attention to what you said.

Before we go to the questioning, I want to thank the witnesses. I have to leave to attend another function for a brief period of time. During my absence, Senator Graham will chair the hearing. We will proceed to the questioning of this panel, and then call the final panel.

Thank you very much, gentlemen. We look forward to working with you on this very difficult, but very important issue.

Senator GRAHAM. Senator Stafford.

Senator STAFFORD. Thank you, Mr. Chairman.

As I listened to the witnesses on this panel in general, I realized that what I said in an earlier statement was somewhat prophetic about the reaction of the panel to the legislation currently being considered by this subcommittee.

In connection with carbon monoxide, and performance of vehicles on the highway, the degradation of performance is great enough so that we have realized, and I think EPA has, that a better in-use performance seems to be the way we have to go. We have, therefore, proposed in the bill that is in front of our committee the 100,000 miles or 10 years in place of the current warranty.

I know that the maority of this panel opposes that proposal, and I would ask what your alternative suggestion might be, since, as we look at the Nation, we have 70 metro areas and 100 million people who are about to face sanctions as a result of our not meeting the ozone standards in December of this year.

If you have a better mousetrap than we do, we would be glad to hear of it and seize it.

Mr. RANDALL. Senator Stafford, in my prepared statement, I suggest that there be a system of service contracts following the rigid 24-month period when the warranty is in place, the initial warranty. Our experience has been that if a vehicle is going to fail, the failure is going to manifest itself generally within the first 24-months of operation of the vehicle.

If you wish to compel extended durability from the manufacturers, a system of vehicle inspection that would reveal defects adequate enough to permit EPA, under its current recall authority, to order a recall over that 100,000 mile period would be an appropriate way to go, we believe.

However, if you wish to ensure that the motorists themselves keep the vehicle in compliance, here again during that 100,000 miles, you would need to have vehicle inspection, rather than condemning tens of millions of motorists who would fail annually back to the dealerships, where there has been a protracted and on-going history of poor performance under those warranties, as evidenced in the Senate Antitrust Committee investigation that took place in the 1970s, and the FTC's hearings and their findings.

Current BBB, Better Business Bureau, data indicate that this is still a leading cause of complaint among auto repair complaints. Rather than condemning tens of millions of motorists, who fail those inspections, back to a monopoly system, we think that it would be far superior to put into the competitive marketplace where you would get the discipline that comes from competition.

Senator STAFFORD. Thank you.

Is there a further comment? Mr. Rasheed, did you wish to comment?

Mr. RASHEED. Yes, I would like to say, Senator Stafford, I think that the warranties are being used to create captive customers for the new car dealers. They are not being used to serve the purpose which they were originally intended to serve. I think that that is the complaint of the industry.

So many cars are taken in to dealers with the expectation that these cars are going to be repaired under that warranty, and, of course, invariably they are not, but there are many other repairs that suddenly become necessary, or these repairs simply are not warranty items for some reason. The original intent of the warranty is not being carried out, and I think that the answer is that there should be much broader I&M inspection than we have today.

I think that some statements that my fellow witnesses made are not correct. I don't think that it is necessary to have a very expensive central system at all. I think the New York system works very well, and that is a system that is conducted through individual service stations.

They all have the same equipment in every station. It is calibrated once a month by the City of New York. The computer tapes cannot be tampered with. They are taken out of each machine. They are checked by the city each month. It is almost a full proof system.

The only thing that should be done is that the waiver should be set higher. I think that it is $75 now, and it should be $200. I think that that is the answer. The current system, making it 100,000 miles, this is only going to aggravate a problem that has just been growing steadily worse.

Senator **STAFFORD**. Thank you.

In what little time I have left, sir, do you wish to make a comment?

Mr. **WALSH**. Yes, Senator. I think that one of the lessons we have learned in the last decade is that improve the in-use performance of vehicles, we need a comprehensive program, and I think that this bill does it. Everyone here has endorsed the concept of inspection and maintenance. This bill makes the current inspection programs better. It expands them.

In addition, the experience has been, as we have tightened standards, we have actually improved the in-use performance of vehicle, and especially the type of technology that the standards in this bill will encourage, should be more durable in the field. I think that the combination of these elements should continue the kind of progress that we started.

Senator **STAFFORD**. Thank you very much.

Thank you, gentlemen. I see that my time is up.

Senator **GRAHAM**. Thank you, Senator Stafford.

Senator Lautenberg.

Senator **LAUTENBERG**. Thank you, Mr. Chairman. I wanted to ask Dr. Deieso a couple of things.

Don, I take it from your testimony that the State of New Jersey generally supports the objectives of S.1351.

Mr. **DEIESO**. That is correct, Senator.

Senator **LAUTENBERG**. How about the practical aspects, the ability to work it into a viable program; do you see it in the outline of the bill as it is proposed?

Mr. **DEIESO**. We not only applaud the spirit, but with few exceptions that we would reserve an opportunity to submit in writing, it suggests that the framework here will be effective and can be accommodated in a program such as New Jersey's.

The one exception of note, of course, is the transport regions and the commission. The concept of a commission, to us, simply acknowledges an abdication of EPA's responsibility in interstate pollution matters. We suggest that it is far more effective to have EPA do what we expect of them. Short of that, every other provision seems to be very good.

Senator LAUTENBERG. The transport problem that you mentioned is dealt with in the regionalization of the standard. Does that make it reasonably acceptable to New Jersey?

Mr. DEIESO. Yes. We applaud the recognition of the transport issue. It is a battle that we have waged with EPA unsuccessfully now for probably two to three years. During that period of time, we have argued that New Jersey's emissions, even if controlled to the point of $4.00 and $5.00 a pound of organic control would put us in such a different picture than the other states in the country, our upwind states. Let me offer you a contrast, and we have proven this with sophisticated air pollution modeling.

Even if we were to stop every vehicle on the road in New Jersey and cork all of our stationary sources, we would still import noncompliance ozone from upwind sources. In its most egregious form, we have industry choosing to locate in Pennsylvania, immediately across the river, because the air regulations with respect to organics are less stringent there than in New Jersey. Yet, those same emissions from those facilities across the river, of course, travel into New Jersey and take their deleterious effects.

So what is certainly in order, in our view, is a national look, a firm interstate control, and some national leadership taking control across-the-board in all of the states.

Senator LAUTENBERG. Therefore, it is fair to assume that the State supports the deadline extensions that are offered to give us a chance to work out the programs?

Mr. DEIESO. We do, Senator.

Senator LAUTENBERG. What about the Federal controls on motor vehicle and specific industry sources?

Mr. DEIESO. Like the concept of transport, it is another item where we look to strong national leadership. New Jersey, back two or three years ago, investigated and continues to investigate the proposition of specifying a certain type of paint, or controlling hair spray and deodorant. These are propositions that if one were to look, individual states simply cannot accomplish. That, as in the case of the automobile, is just perfect, and I suggest to you the intent of Congress in the Clean Air Act, and what we expect of a strong Federal government.

Senator LAUTENBERG. Thank you, Mr. Deieso.

Mr. Chairman, I am finished with my questions. The one thing that we obviously have in front of us is a complicated problem. The articulate and well thought out testimony of each of the panelists represents a particular view on how we get there.

The one conclusion that I come to, however, is that whatever prefixed positions exist, it is pretty obvious that the ultimate objective is one that we are going to have to reach. The health interests of the citizens of our country are at stake. I would urge each of you to look at your position relative to what you hear out of this subcommittee hearing, and try to give us as much cooperation as you can.

My preference is that we achieve something with a consensus of views, understanding that each one of us is going to have to participate one way or the other. The best way to do it would for all of us to get in, and not be so rigid in our position that we don't understand that the final objective must be met.

Thank you very much, Mr. Chairman.

Senator **Graham**. Thank you very much, Senator.

I would like to ask a question of Mr. Walsh. Mr. Walsh, approximately half of the States have a mandatory automobile inspection program for safety and other purposes. The other half do not. Could you review, in those States that do not have a mandatory inspection program, what steps they have been able to take effectively to deal with the specific issue of air pollution?

Mr. **Walsh**. I think that without an inspection program, there is no question that the emissions from the vehicles are higher than with an inspection program. The evidence is fairly widespread that tampering rates are much higher, misfueling is much higher, and the overall quality of maintenance that people get on their vehicles is not as good where you don't have the kinds of checks that an inspection program provides. I think, focusing on the vehicle portion, the areas that don't have inspection programs have dirtier vehicles than the areas that do.

Senator **Graham**. If there is some statistical validation of that, I would appreciate it if you would supplement the record with that information.

Mr. **Walsh**. I will be happy to do that, Senator.

In my written statement, I did include some of the information rates with and without inspection programs, but I will supplement that for you.

Senator **Graham**. Could you give an overview of what you would consider to be some exemplary programs in nonattainment areas where vehicle inspection and maintenance programs were instituted and what impact they had.

Mr. **Walsh**. I think that two of the programs that have always stood out in my mind because they are senior programs, so to speak. There is one in the state of my colleague to my right, the State of New Jersey, which I think was the first program in the country. It started back in 1974.

In addition, the program in Portland, Oregon, many people look to as the one that probably has had the greatest environmental impact. It has stringent standards. It is a centrally run program. It has included anti-tampering checks almost from the inception.

In addition, the program in Arizona has also been a very good program, starting out, in fact, with loaded testing of some of the vehicles. I think that the experience in these programs has been mirrored most recently in the State of California in a different way, where they don't have a centralized program, but they are pushing hard with the private system to get the maximum benefits from that.

Those are the four that stand out in my mind.

Senator **Graham**. Does any other member of the panel wish to comment on the distinction between areas that have and do not have mandatory inspection programs and the effect of that on the issues of air pollution?

Mr. **Randall**. Senator Graham, I would like to reinforce something that Mr. Walsh said, and that is, the repair industry has found that we can do a superior job, a much better job, where we do have inspection with diagnostic information. So there is a reinforcing benefit to the public once they overcome the political objections to the inspection and accept it.

In the States where the programs are working, those programs are widely accepted by the public, and are felt to be of benefit to the public by the public.

Mr. **Rasheed**. Senator, my colleague would like to say a word.

Mr. **Daskal**. Mr. Chairman, I am Jim Daskal, counsel to the Service Station Dealers of America.

We have done a lot of work on I&M in the last few months, and we would like to submit some of our findings for the record of the committee. What we are talking about in I&M is going beyond the traditional I&M program which exists centrally, statewide in about six states, and in about 26 metropolitan areas across the country.

The basic I&M programs that exist today are simply a check of tailpipe emissions to see what is coming out of the pipe. We are talking about enhanced I&M. We are talking about actually physically checking the anti-pollution control equipment to make sure that it is working, and there is a number of other steps. What we are talking about is enhanced I&M which is a step beyond what is existing.

One other remark that I would like to comment on, we heard earlier from the gentlemen from Systems Control about the merits of centralized emission programs, and he cited Maryland as an example.

I would just like to say that I was one of the counsel to the Maryland Judiciary Committee in 1984, when their program went into effect, in the State of Maryland, we lost the first two weeks of our legislative session mainly due to outrage over the I&M program.

Maryland motorists are still very unhappy with the centralized program. There certainly has been a move to decentralize the program. I just have to say, based on my experience when I was in the public sector that the remarks made earlier simply are not correct.

Senator **Graham**. Mr. Walluch.

Mr. **Walluch**. I cannot let that go unanswered.

We will be happy to include in our testimony the latest public opinion polls which were run in the State of Maryland to show how the public feels about the program, and it is obviously not as this gentleman thinks it is. (See p. 188.)

Senator **Graham**. Senator Stafford.

Senator **Stafford**. Mr. Chairman, I do have one more question of this panel. I realize the time is getting late and there is another panel to be heard from. Gentlemen, in the majority, at least, you oppose Stage II as I listened to your testimony as it is proposed in our legislation even though we could achieve a 3 percent reduction, we are told, in our hydrocarbons if we took it, and that is quite a large reduction in an area where reductions are difficult to attain.

Again I ask you, what do we do if we don't go to Stage II? What is the alternative? The only thing that I can think of at the moment is to stop dry cleaners and asphalt paving, for example. Do you have an alternative here?

Mr. **Rasheed**. Senator Stafford, I think that EPA's figures were 2 percent for Stage II, and I think that the figures were also a 2 percent reduction for I&M inspections. So really the two are just about on par. The big saver, I think, was volatility controls, which were listed at about 8 percent.

I think that when all of these factors are considered, you can see that Stage II is very low on the totem pole. But then of all of these other controls, none has the cost impact of Stage II or the public effect that Stage II would have on motorists, or on the small business community, and I think that this is the basis of our opposition to Stage II. It is simply not a practical strategy, and it has limited effectiveness.

Had we gone to onboard when we first began lobbying the Congress 12 years ago, I think, all of the vehicles in the country today would have on-board vapor recovery, and we wouldn't even be talking about Stage II. It certainly would do a much better job.

Senator STAFFORD. All right.

Mr. Walsh, did you wish to speak?

Mr. WALSH. Yes, Senator.

I think we are at the stage where, no pun intended, all of the easy hydrocarbon control strategies have been implemented, with the exception of volatility control, which I do think has a big impact. All of the remaining additional strategies are going to be in the 2 to 3 percent range. But in that range of remaining strategies, it is hard to see one that is much better than Stage II control.

Just to comment on a point that was made earlier, where EPA had estimated the cost to be somewhere between $800 and $1100 a ton, which is relatively inexpensive for hydrocarbon controls in terms of the types of strategies we will have to implement.

Adding an inconvenience cost tended to raise that, but I wonder what is the inconvenience cost that should be deducted for not having to deal with asthma attacks, and not having to take your children to hospitals, and things of that type, which are also related to these vapors, which don't get factored into the cost effectiveness equation.

Senator STAFFORD. Mr. Leiter, did you wish to speak?

Mr. LEITER. I was just going to add to the comments of Mr. Rasheed.

S. 1351 actually sets forth three different control measures to reduce refueling emissions, which is what Stage II addresses. You have volatility controls, which in addition to refueling also address tailpipe and evaporative emission problems. You have the refueling canister on the car beginning in Model Year 1991.

Our analysis of S. 1351 is that the subcommittee is looking at Stage II as an interim measure. While the vehicle fleet in the country is being equipped with the canisters, Stage II would serve as an interim control measure.

The question that we have, based on what we have looked at, is that with the deadlines set in the bill, if you take gasoline volatility down, you get immediate emission reductions. When you start implementing Stage II, given its questionable effectiveness, which is very directly related to enforcement levels as well as exemptions, the timeframe, we think, is too optimistic. The emission reductions from Stage II, thus, will not be as great as expected and will take longer to achieve.

When you look at where you are when the vehicle fleet is equipped with the canister, and you start adding up what you get from all three control strategies, Stage II is not going to provide you with what you believe you are going to get. A reasonable volatility standard combined with the canister is enough.

Then when you look at the equities of the situation, and certainly 202(a)(6) of the Clean Air Act directs EPA at this point to look at equities, the pockets are only so deep. With gasoline marketers being forced to make expenditures for underground storage tanks, the question really becomes, where can you get your biggest bang for the limited dollar?

I think that in protecting human health and the environment, underground storage tanks would be a better place for Congress to look, rather than at the gasoline nozzle at this point.

Senator **Stafford**. Mr. Deieso.

Mr. **Deieso**. Senator, thank you.

If I can underscore the sentiment that you offered. We are finding in the case of hydrocarbon control in support of ozone that we are pushing more and more control measures out of the industrial sector, and into commercial and into our residence, and that results from a decade of control of the refineries and the chemical plants to the point where the cost of those controls are typically 25 cents a pound for the organic emitted.

Stage II, for instance, carries a cost of 40 cents a pound, but let me suggest that the next generation of controls, those for instance affecting a dry cleaner, will push the control into the 80 cents to a dollar a pound. The next generation of control going after the body shops, and perhaps even restaurants that emit organics from their kitchens, is going to plunge this into the $3 and $4 dollar a pound variety of control.

So if there is a thought that we would leave you with it is the fact that organic control in support of ozone measures are going to get more expensive. It is simply a matter of who is going to pay. I think that EPA and the States have an obligation to take those cheaper measures first, and to suggest that a Stage II or an onboard is inappropriate and to push on to dry cleaners, for instance, the cost of a dollar a pound simply doesn't work.

Senator **Stafford**. Thank you very much, gentlemen.

Thank you, Mr. Chairman.

Senator **Graham**. Thank you very much. This has been a very informative panel, and I appreciate your sharing your wisdom.

The next panel will consist of Mr. John Quarles, Chairman of the National Environmental Development Association; Mr. Richard E. Ayres, National Clean Air Coalition; Mr. J. N. Sullivan, Vice President for Environmental Affairs and Engineering, Chevron, USA, accompanied by Mr. M. R. Barr of the law firm of Pillsbury, Madison and Sutro; Mr. Ralph E. Hise, Vice President for Research, Consolidated Natural Gas Service Company; Mr. Ray Dudley, Senior Vice President of Tenneco Oil Company, accompanied by Mr. Urvan R. Sternfels, President of the National Petroleum Refiners Association; Ms. Elizabeth Johnson, Chair of the Air Quality Committee of the Sierra Club; Ms. Priscilla Robinson, Southwest Environmental Services; and Mr. Richard J. Harris, Manager of Contract for the Western Region of Chevron USA, representing the Western Oil and Gas Association.

Mr. Quarles.

STATEMENT OF JOHN QUARLES, CHAIRMAN, NATIONAL ENVIRONMENTAL DEVELOPMENT ASSOCIATION

Mr. QUARLES. Thank you, Mr. Chairman, and members of the committee.

On behalf of the corporations and labor unions of NEDA/CAAP, we have submitted a lengthy written testimony, which I appreciate having included in the record.

Mr. Chairman, you have had a long morning being bombarded by arguments on a great many specifics. What I would like to do in these oral comments is to step back a bit from the detail, and speak to a few general principles, which are thoroughly supported in our written statement.

In preparing for this testimony, I recalled the morning 14 years ago when I came up, as Deputy Administrator of the Environmental Protection Agency, to this room, to brief the then members of this committee on the control plan that was being announced that day in Los Angeles by Bill Ruckelshaus for the Los Angeles area. That plan called for, among other stringent control measures, 86 percent gasoline rationing as a way to achieve compliance with the statutory dictates.

I recall that a number of Senators on the committee had been elected the previous fall, and this was the very first day that they showed up for anything to do with the Senate Committee on Environment and Public Works. They were shocked when they recognized the impacts of the Clean Air Act. Needless to say, although that plan for Los Angeles was required to achieve the statutory provisions, and indeed that plan was ordered by a court, it was not carried out.

This was 1973. In 1977, the Clean Air Act was amended to provide a five-year extension of the deadlines to achieve attainment. It also provided, for areas where it would be hard to attain the standard for ozone and carbon monoxide, an additional five years to carry from 1982 to 1987. Now we are in 1987, and this committee is considering an extension of those attainment dates to 1992 and 1997. But the reality is, particularly in Los Angeles, that we have not gotten appreciably closer to achieving actual attainment with the ozone standards in the intervening 14 years.

It is also a reality that we will not achieve attainment in Los Angeles by 1992 or 1997, or the Year 2000, or any time within the ability to foresee what will happen. That reality does not depend on anybody's disputes of data, nor does it depend on any resolution of dispute as to what should be done.

I think that everyone who was close to this problem recognizes that that is the reality. Mr. Deieso, from New Jersey, just a few moments ago, reiterated that basic point as to the New Jersey/New York area—that is, they don't foresee achieving compliance by 1997.

I think that it is important for this committee to look closely at the reality of what is involved from an air quality viewpoint and control measures in this air pollution program for ozone. There are some 70 areas that are not in attainment, 35 of those areas are a long way from achieving attainment.

Another part of the reality that the public does not understand, though Senator Stafford, in his questions a moment ago highlighted part of this, the enormous gap between where we are and what attainment would require, and the extremely small sliver of progress represented by any of these control measures that we are presently talking about.

So there may be a sense in the public that we are almost getting there, and a notion of a five-year extension fuels that sense; but it is not the truth, and we are not going to get there.

Another part of the reality is that we have made tremendous progress in reducing violations of the standards, particularly if you look at this not from the viewpoint of areas in nonattainment, but look at it in terms of percent of time in attainment, or look at it in terms of population exposed to an exceedance of the ozone standard.

We have a chart which will be held up now, showing for the Houston area, as one example, the percentage of the time when there is a violation of the standard. It is very brief. Attached to my testimony are other charts showing the same amount.

In terms of this legislative approach, many specifics are sound, but some are unsound, and I would single out the problems of section 172(e)(2)(B), which would require annual 8 percent reduction in emissions at each source as being totally unworkable.

Although there is more that I would like to say on this, I would like to shift to PSD, and simply note that I have had the opportunity on prior occasions to testify before this committee as to many problems inherent in the PSD system. With the promulgation by EPA of the new PM-10 NAAQS that affects suspended particulates, these PSD problems become far more severe. While NEDA/CAAP supports BACT on new sources, it opposes many of the new source review and increment requirements in the Act because they are time consuming, costly and do not produce any air quality benefit.

Both the PSD problems and these other nonattainment problems impact industry in a way that will impede growth and modernization of facilities, and cause us to fall further behind in attempting to be more competitive in the world markets. That is the bottom line, and we would like to develop that concern as more time would be provided.

Thank you, Mr. Chairman, for the opportunity to present this testimony.

Senator GRAHAM. Thank you very much, Mr. Quarles.

Mr. Richard Ayres.

STATEMENT OF RICHARD E. AYRES, NATIONAL CLEAN AIR COALITION

Mr. AYRES. Thank you, Senator Graham.

Chairman Graham and members of the subcommittee, I am delighted to be here today to testify on behalf of the National Clean Air Coalition.

Mr. Chairman, in 1970, under the leadership of Senator Muskie, this nation dedicated itself to protecting the health of the most vulnerable of our citizens—the old, the young, the sick—from the effects of air pollution. Through the policies adopted consciously by EPA in the last few years and the unconscious policy that is promulgated by the failure to adopt amendments to the law, we have lost much of that momentum.

The task this Congress faces can be described succinctly. While great progress has been made in the last 17 years, air quality remains unhealthy in some 70 metropolitan areas. Your job is to strengthen the existing structure of the Clean Air Act to complete the task begun in the 91st Congress. Mr. Chairman S. 1351 is an important step towards that strengthening.

There is much to applaud in this bill. There are also serious and fundamental flaws, particularly with respect to State implementation plan requirements, which must be corrected if the bill is to redeem its promise. In its basic structure the bill is a creative response to the nonattainment problem.

It affirms the most basic premise that the answer to too much pollution is to reduce pollution. The bill recognizes the regional nature of the smog problem and ptovides a well conceived four part response to that problem. The bill will take important new steps to make sure that vehicles perform on the road where it counts as well as they do in the certification process. We strongly support all of the bill's in-use provisions.

Mr. Chairman, the 5 minute rule prevents me from detailing all of the things which we find positive in this bill. I would be delighted to expand on those points in response to questions.

Let me turn, though, to the problems we see in the bill. The bill creates basically two classes of nonattainment areas. One class may obtain an extension of the attainment deadline for up to five years in return for committing to adopting certain measures.

A second, presumably more polluted, class may escape from the deadlines altogether for what appears on the face of the bill to be commitments to an enhanced program. Part of this enhanced program is a requirement that the area attain a specified emission reduction of eight percent or less per year each year.

It appears that the initial intention in this scheme was to require that a nonattainment area which could not show that it would meet the standards within five years, would have to move to a more enhanced and more powerful program.

However, as the bill is written, it includes what has been called a downwind exemption, which would allow most localities that do not demonstrate attainment within five years to avoid the enhanced program that is supposed to apply to them. It would also encourage areas that could attain in five years to escape the deadline by claiming that they could not.

The downwind exemption sets up a giant finger-pointing exercise that would defeat the whole enhanced control program. Virtually every locality would be able to escape the enhanced program by using the technique of air quality modeling to assert that if other localities do their jobs, then it won't be necessary to do more in this locality. Each locality would be allowed to do less based on the assumption that others would do more. Thus, in the end the whole program would be defeated.

For these reasons, we recommend that the downwind exemption be deleted from the bill. Even if that exemption were eliminated, however, there would still remain problems related to the issue of deadlines.

First, the bill abolishes deadlines for the most polluted areas of the country. For many years, we have urged that deadlines are very important. The fact that we are all here today is a testimony to the importance of deadlines. We do not believe the Congress should adopt open-ended clean air provisions, and thus we recommend that every area be subject to attainment deadlines, no matter what state of pollution it is in.

Second, the bill allows any area that shows it needs more than five years to attain those standards, to have as much as ten years to complete the job, even if only a few days more than five years is needed to do the job. This happens because the bill provides that areas which cannot attain the standards within five years may have an enhanced program, which is allowed to stretch out over a ten year period. As part of the enhanced program the locality must achieve to meeting an eight percent reduction or less, if it can achieve the goal of attainment within the ten year period.

In effect this means that the eight percent reduction per year will be required in the most polluted areas, but less polluted areas that need less will be required to move at a slower rate rather than attain healthful air quality sooner. They will be allowed to stretch out their attainment date until the ten year period is over.

Third, metropolitan areas that show that they can attain the standards within five years are entitled under the bill to take as much as five years to implement every measure that is required, regardless of whether it takes that much time to do it.

We are also extremely disturbed by the treatment given to resource recovery facilities in S. 1351. Incinerators are the fastest growing source of pollution in our metropolitan areas, yet the bill allows local and State officials to, in a number of respects, treat them as if they don't exist. People still breathe the pollution, but officially they will not be recognized.

Mr. Chairman, I see my time has expired. I just want to add that, as I think is obvious, these are very serious problems that we have pointed out, ones that we hope the committee will see fit to correct in the process of markup.

We think if these are corrected, this is a bill which can be strongly supported by public interest and the environmental community.

Senator **Graham**. Thank you very much, Mr. Ayres.

Mr. J. N. Sullivan.

STATEMENT OF JAMES N. SULLIVAN, VICE PRESIDENT, ENVIRONMENTAL AFFAIRS AND ENGINEERING, CHEVRON, U.S.A., REPRESENTING THE AMERICAN PETROLEUM INSTITUTE, ACCOMPANIED BY MICHAEL BARR

Mr. **Sullivan**. Thank you.

Mr. Chairman, members of the subcommittee, my name is James Sullivan. I am a Vice President with Chevron Corporation, speaking today on behalf of the American Petroleum Institute. With me is Mr. Michael Barr of Pillsbury, Madison and Sutro.

I am here to present API's views on ozone nonattainment and what can be done to improve air quality. We have submitted written comments to the committee, which contain important new data on the points we wish to raise here today.

The country has made substantial progress in attaining the ozone standard. We must recognize that progress and then strive to understand as best we can the nature of the remaining ozone problems. Once we know more, we can work together to develop ozone attainment plans that achieve the needed environmental improvement using the most cost effective controls.

Recently API has taken a hard look at the actual ozone nonattainment data across the country. We found that EPA's air quality report card is inadequate. Under EPA's approach, all areas of the country are graded either A or F—that is attainment or nonattainment. For most large communities in our nation that has meant 17 straight years of undeserved Fs.

Despite spending years planning, regulating, controlling, and substantially reducing ozone, many areas still get Fs and face possible imposition of sanctions by December 31st of this year. There is clearly a need for a better grading system, one with Bs, Cs or Ds, to measure the substantial progress we have made and will continue to make.

Several examples may help illustrate our point. In the San Francisco urban airshed, the actual number of hours that ozone levels were above the standard declined from 194 in 1969 to 29 in 1983, and to only 3 hours in 1986.

These declines mean that there has been a 99 percent reduction in total population exposure to ozone exceedances in the 17 years since the Clean Air Act was enacted. Yet, San Francisco still flunks the EPA test.

Other areas show similar results. The Greater New York-New Jersey area is ranked fourth of 76 areas by EPA. Yet data for all 17 monitors in the area show compliance with the ozone standard 99.64 percent of the time that air was monitored for ozone.

A Detroit area is ranked 55th of 76 areas by EPA. Yet Detroit flunks EPA's test only a few hours a year at a single monitor.

The Washington, D.C.-Virginia-Maryland area is ranked 28th of 76 areas by EPA, but it met the ozone standard 99.9 percent of the time between 1981 and 1985.

This and similar information for the rest of EPA's 76 nonattainment areas has tremendous implications for air quality planning and for what Congress should do about ozone in 1987.

API recommends a series of steps that the nation should take to understand how much progress has already been made in cleaning up our air, and to choose strategies that will be most productive and cost effective in improving air quality.

First, we recommend the adoption of a comprehensive and realistic measure of air quality improvements. As and Fs don't help air planners. We should recognize that communities are improving air quality, if the number, intensity or extent of exceedances declines.

Second, improved monitoring and modeling should be used to assure that the suggested control options will produce the desired improvements.

Third, a complete and updated emissions inventory should be developed as part of the current SIP evaluation before more controls are imposed.

Fourth, EPA and State governments should undertake an objective evaluation of the existing SIPs and past efforts.

Fifth, we recommend cost effectiveness techniques to help decision-makers select appropriate controls. The focus should be on the cost to improve air quality in the remaining problem areas, not the cost to reduce emissions.

In summary, many of you have been told about areas in your State being graded F for not having clean air. The current Clean Air Act and shotgun proposals for dealing with that failing grade threaten to seriously punish areas in your States.

Our message is that your areas have been unfairly graded. Most of them have made substantial progress towards attainment, and deserve at worst B pluses or A minuses. They should be rewarded and not flogged. We all need to see what remains to be done to raise everybody's grade to an A.

To do that, we recommend taking a hard look at what has worked and what hasn't, and then carefully evaluate what additional steps will provide us the greatest benefit in the most efficient manner. If we are able to do that together in a sensible and sound manner, we can achieve environmental and economic A pluses for the nation.

We recognize, Mr. Chairman, that you have introduced legislation on ozone nonattainment in the last week. Our members are strongly opposed to the mandatory stage II, RVP, low sulfur diesel, and other provisions of the bill. We are analyzing the bill in greater detail and we request that the committee leave the record open for API to submit detailed comments on S. 1351. (See p. 263.)

Thank you very much.

Senator **Graham**. Those supplemental comments and evaluation will be welcomed in the record.

Mr. Ralph Hise, Vice President, Research, Consolidated Natural Gas.

STATEMENT OF RALPH E. HISE, VICE PRESIDENT OF RESEARCH, CONSOLIDATED NATURAL GAS SERVICE COMPANY, REPRESENTING THE AMERICAN GAS ASSOCIATION

Mr. **Hise**. Mr. Chairman and members of the subcommittee, I am Ralph Hise, Vice President for Consolidated Natural Gas in Pittsburgh, Pennsylvania, and I am appearing here today on behalf of the American Gas Association.

AGA is a national trade association consisting of nearly 300 natural gas distribution and transmission companies that serve more than 166 million customers in all 50 States.

In my written testimony, I have summarized AGA's views and the views of my company on the Senate proposals for reducing acid deposition and also on the potential contribution that natural gas can make in attempting to bring areas of the country into compliance with standards set by the Clean Air Act for ozone and carbon monoxide.

One way to help achieve clean air compliance is to encourage the use of natural gas vehicles. Natural gas is a commercially proven vehicular fuel, which can result in significant emissions reductions in comparison to gasoline or diesel fuels. Converting vehicles to run on compressed natural gas can reduce carbon monoxide emissions by up to 99 percent, nitrogen oxide emissions by up to 65 percent and reactive hydrocarbon emissions by up to 85 percent.

Converting just 10 percent of the fleet vehicles would use less than 100 billion cubic feet of natural gas a year, which is less than 1 percent of our annual production. The results of this conversion could, if focused in nonattainment areas, help bring these areas into compliance.

We believe that any legislation addressing the need for reducing the Nation's dependence on foreign oil and attaining Clean Air Act compliance should be designed to encourage the development of various alternative fuels, including natural gas. To this end, AGA supports the provision in Senator Mitchell's bill requiring States to consider requirements for the conversion of fleets to cleaner engines or fuels.

While AGA has no formal position on the specific acid deposition control bills introduced this session, we believe that natural gas can play an important role in reducing emissions believed to be the primary precursors of acid deposition. Natural gas is extremely clean burning and can reduce emissions dramatically in stationary applications.

Natural gas can also be co-fired with less attractive fuels to reduce emissions levels associated with those fuels. For example, in my company's service area, St. Joe resources is now co-firing 10 percent gas in their coal-fired boiler to comply with a recent EPA consent decree.

As a second example, Ducane Light installed gas for start up on their Cheswick coal-fired boiler in the city of Pittsburgh. They have now found that they can trim their sulfur emissions instantaneously with gas and stay in compliance. This will permit them to buy lower cost coals and reduce their cost of operation.

A third example was the switch by Niagra-Mohawk of their Albany steam station from imported residual oil to natural gas last January because of price. This switch instantly reduced the rate of sulfur dioxide emissions by 20,000 tons a year and reduced imported oil by 3 million barrels a year.

In conclusion, the use of natural gas for compliance is an attractive option because of its long-term availability from both conventional and unconventional sources, because of its acknowledged clean burning characteristics, and because of its extensive in place delivery infrastructure.

AGA believes a natural gas vehicle program should be encouraged. Further, AGA recommends that any emissions control program should give the freedom and flexibility for plant operators to choose the most cost effective options for their sites. In such a marketplace natural gas will be chosen often on price, performance and on its positive impact on our society.

Thank you.

Senator GRAHAM. Thank you, Mr. Hise.

Mr. Ray Dudley, Tenneco Oil Company.

STATEMENT OF RAY DUDLEY, SENIOR VICE PRESIDENT, TENNECO OIL CO., REPRESENTING THE NATIONAL PETROLEUM REFINERS ASSOCIATION, ACCOMPANIED BY URVAN R. STERNFELS, PRESIDENT, NATIONAL PETROLEUM REFINERS ASSOCIATION; AND LLOYD BUSCH, VICE PRESIDENT OF ENGINEERING, ASHLAND PETROLEUM CO.

Mr. **Dudley**. Good morning, Mr. Chairman and members of the committee. My name is Ray Dudley. I am Senior Vice President of Tenneco Oil Company. I also serve as Chairman of the Manufacturing Committee of the National Petroleum Refiners Association.

The NPRA is a trade association whose membership includes most refiners, large and small, in the United States. Our comments today, Mr. Chairman, will be directed specifically to the provisions in several pending bills, which would require refiners to dramatically reduce the maximum allowable sulfur content in diesel fuel.

Today the national average sulfur content of diesel fuel is approximately 0.27 weight percent. This is about one-half the maximum sulfur content of 0.5 percent by weight recommended for diesel fuel sold in accordance with the standards of the American Society of Testing and Materials.

Provisions in the proposed bills would require the sulfur content of diesel fuel to be reduced to 0.05 weight percent or in some case down to as low as 0.025. These are severe reductions in terms of their impact on the refining industry. They would require the construction of extensive new desulfurization equipment in most refineries.

A preliminary study which was done by a consultant of the EPA, and which was released to the public last year, concluded that the so-called average refinery could reduce the sulfur content of diesel fuel to 0.05 weight percent without reducing the availability of diesel fuel.

It further said this could be done using only existing equipment. Those theoretical conclusions are far removed from the real life situation. The EPA has commissioned its Mobile Sources Division to study the issue in more detail.

In the interest of providing more realistic data, the National Petroleum Refiners Association undertook a comprehensive refinery-by-refinery survey. We received responses from 139 refineries representing 98 percent of the national crude oil processing capacity.

The question obviously is, do U.S. refiners have the physical capacity to meet the stringent sulfur levels prescribed in the legislation you are considering? The answer is, no they do not.

The next question is, can refiners add sufficient desulfurization capacity to meet the 0.05 weight percent level? And the answer is, some could and some could not. Thirty-seven out of the 139 refineries reported that they would not be able to make the needed improvements because of either economic or environmental permitting constraints or both. These 37 refineries account for about 415,000 barrels per day of the nation's highway diesel fuel production. The majority of these are small independent refiners.

If refiners are required to make the needed improvements, how much would it cost and how long would it take? Our survey reveals that the additional desulfurization capacity that would be required would cost refiners $3.3 billion in capital expenditures, plus another $1.2 billion per year in operating costs, or about 7.7 cents per gallon for highway diesel fuel.

It would be impossible to build all the needed facilities in the very short one to two year time frames set forth in the pending legislation. The survey indicates long-term diesel fuel shortages as well.

Mr. Chairman, the economic impacts on refiners of a dramatic reduction in the sulfur content of diesel fuel will vary greatly, depending on factors such as refinery size, refinery processing complexity, current diesel fuel quality that they can produce, and quality of crude oils processed.

For the 25 refineries whose individual crude oil capacities are less than 30,000 barrels per day, their cost burden to produce the 0.05 percent sulfur diesel would require three times per unit cost of the industry average. This would seriously jeopardize their competitive viability.

In closing, I want to thank you for inviting the association here today. This has been a very brief summary of a very complex study. As you can see it is a very thick report that I have summarized, and we would like, if it is acceptable to you, to submit the entire report for the record.

If we can respond to any questions that you may have, we would be glad to do so. Thank you very much.

Senator **GRAHAM**. Thank you very much, Mr. Dudley. The report will be included in the record (see p. 297). When we complete the initial comments we will proceed to questions.

Ms. Elizabeth Johnson, Chair of the Air Quality Committee of Sierra Club.

STATEMENT OF ELIZABETH G. JOHNSON, CHAIR, SIERRA CLUB AIR QUALITY COMMITTEE

Ms. **JOHNSON**. Thank you, Senator Graham. Finally the women get their day here. My name is Elizabeth Johnson, and I thank you for this opportunity to testify today on behalf of the 410,000 members of the Sierra Club. As you have mentioned I am Chair of the Club's Air Quality Committee and I am an active member of the Club's New England Chapter.

My home town of Boston, Massachusetts, and the rest of the Northeast are suffering from unhealthy levels of smog. According to the latest Environmental Protection Agency data, the ozone health standard was exceeded on 28 days in 1985.

As many as ten metropolitan areas in New England may continue to violate the health standard for ozone pollution after December 31st, 1987. The health affects to sensitive populations are well known to you. There is also increasing evidence that ozone pollution can significantly impair long function in normal health adults as well.

Exposure to unhealthy ozone levels could harm individuals who are strenuously working outdoors. This is of particular concern where Boston is experiencing a very great building boom, with many thousands of its construction workers who are outside working under these conditions.

In March of 1987, the Sierra Club's Northeast Regional Conservation Committee issued a report, the "Study of Areas Failing to Meet the Ozone Air Quality Health Standard." This report has been submitted along with my written statement. This report documents the failure of the current Clean Air Act and the EPA to solve the ozone crisis in New England, and includes recommendations for action by the Congress and EPA to achieve healthy air.

My comments today come from the findings and recommendations in this report. The current State-by-State approach to reducing ozone pollution ignores the huge role that interstate transport of ozone plays in contributing to the region's unhealthy air. Ozone and its precursors move up the East Coast from Northern Virginia to Maine with each State contributing to the ozone pollution downwind.

For instance, as we have heard earlier today with the case of New Jersey, Massachusetts also can claim that fewer than ten percent of its ozone health standard violations are attributable to sources within the State. Yet, current EPA policy allows a State to control its emissions only as much as would be needed to achieve the ozone standard as if the air coming into the State were at or below the ozone standard.

States are also doing far less than is needed to improve ozone levels because EPA approved inadequate State implementation plans. The plans are often inadequate because they do rely on overly optimistic air quality models and incomplete emissions inventories.

Even though the planned emission reductions in the State Implementation Plans did not produce or have not produced the predicted improvements in air quality, EPA has not gone ahead and required additional emission controls, even when some of these were already written into the State Implementation Plan.

EPA has allowed wide variations in State stationary source pollution control requirements, even within our small region of the country. These inequities have made State governments reluctant to move ahead faster than their neighbors in controlling ozone pollution, because of their fear that regulated industries would relocate across State lines.

The Clean Air Standards Attainment Act of 1987, Senate 1351, includes many of our recommendations to solve the ozone crisis in the Northeast. We commend Senator Mitchell and the committee, him for submitting such a bill, and the committee for looking at it because of the great number of very good provisions that it includes. My written testimony does go through those.

However, there are areas where Senate 1351 does fail to adequately address at least the Northeast ozone problem.

First of all, the bill gives communities a full five years to implement additional pollution controls to meet the health standards, even if these controls can be implemented much more rapidly. The controls should be employed as soon as possible.

Second, section 101(C) would create what Mr. Ayres termed as "open ended, downwind" exemption, which would permit cities with severely polluted air that could not meet the health standards in five years to avoid a more stringent program rather than acknowledging the regional nature of the nation's ozone program.

This provision would perpetuate the status quo by encouraging communities to rely on other communities to reduce their ozone.

Although the bill does establish an ozone transport region, it does not go far enough to solve transboundary air pollution levels. All parts of a region must be classified one way and be subject to the same requirements, and we cannot treat different parts of a region differently.

Finally, I want to suggest that clean air will only be achieved nationwide if there is adequate funding to implement the provisions of an improved Clean Air Act. Funding authorizations and grant programs are included in other environmental legislation. Yet they traditionally have not been within the Clean Air Act, and I think this committee should look at considering that kind of mechanism including the funding right into the legislation.

Senator **Graham**. Thank you, Ms. Johnson.

Ms. Priscilla Robinson, Southwest Environmental Services.

STATEMENT OF PRISCILLA ROBINSON, DIRECTOR, SOUTHWEST ENVIRONMENTAL SERVICE, TUCSON, AZ

Ms. **Robinson**. Mr. Chairman, I am Priscilla Robinson, and I am the Director of Southwest Environmental Service, a very small environmental clearinghouse located in Tucson, Arizona. I have been directly involved in putting together nonattainment plans in Tucson and Phoenix as a citizen advocate.

Both of those two cities have been updating their plans for the last year, as a result of the settlement of a citizen law suit, not as a result of any pressure from EPA. I have been looking at many of these issues and strategies as they appear from the inside, so to speak, of communities that are trying to put together plans to reach attainment.

I have submitted written testimony, and I will try to summarize it in the time I have. I want to address the common problems of 23 cities in the West, excluding California. These 23 cities represent all of the major cities in the West outside California, where carbon monoxide is the major problem.

I guess one of the first things I want to impress upon you today, if nothing else, is that the carbon monoxide problem is not solved. We have had a great deal of discussion today of ozone as if that were the primary problem, and perhaps it is, but I am here to tell you that in the West it is not. Our primary problem is CO.

There are other elements in common between these cities. One is that they are all growing very rapidly, another is that they are all auto dependent, and; also in most of these communities, the total VMT is growing faster than the population. At the top of this list of 23 cities are Denver and Phoenix.

Denver is second in the nation only after L.A., which is always ahead of us in everything, in carbon monoxide pollution. Denver has exceedances of over twice the health standard. The second city is Phoenix. Phoenix experiences exceedances of double the standard, and two years ago had 89 exceedances, which is quite a few.

In Denver, the total vehicle miles traveled has been expanding at the rate of about seven percent a year. I don't have the figure for Phoenix, but I think it must be approximately the same. The population is growing at two to three percent a year, but growth of VMT far outweighs population. This creates a very special problem where the issue is not just attainment, but maintenance.

So, when we begin to model for these communities, we immediately begin to run into a problem with maintenance. I am concerned that the issue of maintenance in rapidly growing communities is, so far, not being addressed.

Phoenix has just finished modeling its latest draft plan, which includes our very successful Inspection & Maintenance [I&M] program with anti-tampering. We have had centralized I&M for six or eight years, employer-based trip reduction expanded ride share. Our legislature recently passed a law requiring conversion of all fleets over 25 to alternative fuels. All of those strategies have gone into the modeling.

Modeling for the new plan for Phoenix shows a gradual drop in CO emission levels to the mid-1990s, but it never reaches attainment, even with the application of all the strategies including all of the ones that are in this S. 1351. Phoenix never reaches attainment for CO. Then concentrations gradually begin to climb back up.

The reason behind this is something that has to be understood in order to appreciate what is going on. The most effective strategy today is the turnover of the fleet. We are still getting substantial benefits from fleet replacement in all of the western communities that have a CO problem, but that is going to be just about used up by the mid-1990s.

As the fleet turns over we continue to get a very substantial benefit and that is reinforced by a very successful I&M program. But, when that is used up, in the mid-1990s, then levels of CD will begin to rise and none of the other strategies begin to touch the growth problem.

So, in looking at Phoenix's new plan, the new strategy that gave the most benefit was voluntary no drive days at five percent reduction. Looking at this we see that we must have new strategies for the mid-1990s.

There are two ways we can go. One is a dramatically cleaner car. EPA must begin looking at alternative fuels. EPA must also have the tools to begin to require communities to look at control of the growth of VMT. That means removing the prohibition in Section 110 on review of indirect sources. That means tying air quality planning much more tightly to regional transportation plans. We have taken kind of a first step, but this must go much farther in order to really make planning work.

The two-tier proposal in S. 1351, causes me, serious concern because it doesn't address the issue of maintenance. Tucson would fall into the first class and wouldn't have to do very much, but modeling shows that even if Tucson does everything, we will be out of attainment by 1995 because of rapid growth. Tucson must be required to do everything now.

There are a lot of good things in the bill I wish I had time to talk about, but S. 1315 is not enough. We are rapidly growing cities with severe CO problems. We can't get there from here.

Senator **Graham**. Thank you very much, Ms. Robinson.

Mr. Richard J. Harris, Manager of Contracts, Western Region, Chevron.

STATEMENT OF RICHARD J. HARRIS, MANAGER OF CONTRACTS, WESTERN REGION, CHEVRON, U.S.A. REPRESENTING WESTERN OIL AND GAS ASSOCIATION

Mr. **Harris**. Thank you, Mr. Chairman.

Your first witness this morning spoke on section 106, and I, being the last, will do the same. Because of this arrangement, this has been referred to a bookend-type of hearing, although, predictably, these two bookends are not going to match up.

I represent the Western Oil and Gas Association and I want to make sure that it is clear that the industry position on the remainder of S.1351 has been established by Mr. Sullivan. We are speaking only to section 106, the outer continental shelf portion of the bill.

We feel initially that it effectively amends the Outer Continental Shelf Lands Act and I must admit to a feeling of being somewhat swept along behind the grander ozone issue that has been presented here today. I have some comments on that bill, but it doesn't seem to us to be the major effort of this piece of legislation.

We oppose section 106 and we oppose it for two important reasons. This proposal, I think, results in offshore emissions being regulated by adjacent onshore local jurisdictions, regardless of how that regulation would effect the interplay between onshore air quality and the exploration and development of offshore energy.

We think the proposal would also undermine significant joint efforts, now underway, that are aimed at gaining a better understanding of how offshore emissions affect onshore air quality and also aimed at achieving a proper balance in new offshore air quality regulations.

As to the first point, WOGA opposes the intent of this particular section. The legislation effectively subordinates Federal OCS exploration and development programs to local control. This happens regardless of the effect on air quality or the development of the nation's offshore energy resources.

We think the legislation is overly simplistic. It applies to the Gulf of Mexico, even though it is clearly aimed at California. I need to draw a distinction here. Most of California's activities on the OCS occur in the three to ten mile range. In the Gulf of Mexico there are activities up to and beyond 200 miles from shore.

California has perhaps 15 installations offshore, whereas in the Gulf there could be up to 4,000. The point here is that there are vast differences between the various OCS areas throughout the country, both meteorologically speaking and activity-wise, and those should be taken into account. Section 106 does not do that.

WOGA has always supported the proper regulation of air emissions from OCS sources. Proper regulation, in our minds, is derived from a health based evaluation of the air quality and an appropriate balance of the nation's priorities. We do not support regulation for regulation's sake, which appears to be the effect of this section.

Secondly, we also oppose section 106 because of its premature introduction. There are two programs that I alluded to previously. One is called SCCCAMP, South Central Coast Cooperative Aerometric Monitoring Program. It has been underway for four years and has cost about $4 million, in part funded by Congress. It was designed to provide policy makers with the better technical background to understand air movement along the Central California Coast and the effects of air emissions from OCS sources.

Secondly, as was mentioned by other witnesses today, the negotiated rulemaking is underway and that process is designed to develop air pollution control rules for facilities in the California OCS. That has been underway for about a year. This process is intended to develop rules that will serve to guide the Air Pollution Regulatory Program for California and represent a consensus among industry, regulatory agencies, and the local communities.

SCCCAMP and the negotiated rulemaking represent the type of cooperative efforts that are needed to solve a complex problem that is thick with political and technical considerations. SCCCAMP brings together the effective technical experts to build the proper basis for scientific examination of the issue and the negotiated rulemaking brings together all of the affected parties, in California at any rate, to design a regulation which balances the needs of the parties.

We think this legislation could undermine both the efforts. The key to solving this particular OCS air quality dilemma is two-fold. First of all, the efforts now underway to develop a consensus on the technical evaluation of adjacent State air quality must be allowed to continue. Moreover, a consensus on the proper balance between air quality regulation and OCS development must be reached.

Secondly, the incentive and ability to properly assess the contribution of OCS emissions to the air quality situation onshore must be preserved. This is particularly important due to the unique meteorological characteristics and levels of OCS activity present in the Gulf, offshore California, Alaska, and other areas.

In summary, we just don't think the legislation is necessary at this time. We would urge you to correct that in the markup, if you could.

Thank you very much.

Senator MITCHELL. Thank you very much, Senator Graham.

I have no questions of the witnesses. I do thank them all for their contributions and we will review carefully the testimony you have given as we work toward legislation in this area, and look forward to further cooperation with all of you in that effort.

That concludes the hearing.

Thank you all very much.

[Whereupon, at 12:35 p.m., the subcommittee adjourned.]

[Statements and other material submitted for the record and the bill S. 1351 follow:]

TESTIMONY OF

SENATOR PETE WILSON

OF CALIFORNIA
BEFORE THE SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
ON S. 1351
JUNE 16, 1987

MR. CHAIRMAN, THANK YOU FOR THE OPPORTUNITY TO APPEAR HERE TODAY TO DISCUSS THE CLEAN AIR ACT. THIS IS A MATTER OF CRITICAL IMPORTANCE TO CALIFORNIA AND MUCH OF THE REST OF THE NATION, AND I APPRECIATE THE CHANCE TO DISCUSS THIS SUBJECT WITH YOU THIS MORNING.

THE GREATEST CHALLENGE FACING CALIFORNIA IS HOW TO DEAL WITH GROWTH. WE ARE NOW AT 27 MILLION PEOPLE, AND WE HAVEN'T STOPPED GROWING. LAST YEAR, CALIFORNIA'S POPULATION GREW BY 2.4%. WHILE THIS PERCENTAGE FIGURE MAY SOUND SMALL, IT WORKS OUT TO A GAIN OF 623,000 PEOPLE.

PUT DIFFERENTLY, CALIFORNIA'S GROWTH IN ONE YEAR EXCEEDED THE ENTIRE POPULATION OF THE STATES OF WYOMING OR SOUTH DAKOTA OR DELEWARE. THE RESULTING STRAIN ON THE STATE'S INFRASTRUCTURE IS BEGINNING TO SHOW IN EVERY WAY FROM OVERCROWDED PRISONS TO INADEQUATE SEWAGE TREATMENT CAPACITY.

BUT THE PROBLEM IS GETTING TO BE MORE SERIOUS THAN SIMPLY THE NEED FOR NEW HIGHWAYS. REAL HEALTH PROBLEMS ARE BECOMING INCREASINGLY PREVALENT. AND AS THIS COMMITTEE KNOWS SO WELL, A LEADING PROBLEM IS DIRTY AIR THROUGHOUT CALIFORNIA, AND ESPECIALLY IN THE LOS ANGELES BASIN.

I AM TOLD THAT THE LOS ANGELES AIR BASIN WILL NOT REACH CLEAN AIR ACT STANDARDS IN THE FORESEEABLE FUTURE UNDER THE EXISTING AIR MANAGEMENT REGIME. INEVITABLY, SOUTHERN CALIFORNIANS WILL HAVE TO ADOPT SOME FUNDAMENTAL LIFESTYLE CHANGES IF WE ARE EVER TO ACHIEVE A HEALTHY CLEAN AIR ENVIRONMENT.

IN THAT REGARD, I AM ENCOURAGED BY THE LEADERSHIP SHOWN BY THE CHAIRMAN IN YOUR INTRODUCTION OF S. 1351, THE "CLEAN AIR STANDARDS ATTAINMENT ACT OF 1987." THERE ARE SEVERAL PROVISIONS OF YOUR BILL THAT ARE OF PARTICULAR INTEREST TO ME, AND MY COLLEAGUES CAN EXPECT TO HEAR FROM ME IN THE NEAR FUTURE ON ONE NEW LEGISLATIVE PROPOSAL IN PARTICULAR.

BUT I AM HERE TODAY TO DISCUSS OUTER CONTINENTAL SHELF AIR EMISSIONS. I WAS GRATIFIED TO SEE THAT THE CHAIRMAN HAS INCORPORATED INTO S. 1351 THE LANGUAGE OF MY BILL, S. 235, WHICH DEALS WITH OCS AIR QUALITY. IT IS ON THIS SUBJECT THAT I WOULD LIKE TO FOCUS THE BALANCE OF MY REMARKS.

OIL AND GAS DEVELOPMENT ACTIVITY OFFSHORE SOUTHERN CALIFORNIA IS A MAJOR SOURCE OF AIR POLLUTION, BUT IT ISN'T REGULATED UNDER THE CLEAN AIR ACT. INSTEAD, IT IS THE DEPARTMENT OF THE INTERIOR THAT HAS BEEN CHARGED WITH THE TASK OF REGULATING OFFSHORE EMISSIONS ONLY TO THE EXTENT THAT THE DEPARTMENT JUDGES THE OFFSHORE ACTIVITY TO "SIGNIFICANTLY AFFECT" ONSHORE AIR QUALITY.

THE REASON I AM HERE TODAY IS TO TELL YOU THAT THE INTERIOR DEPARTMENT'S DETERMINATION OF WHAT "SIGNIFICANTLY AFFECTS" ONSHORE AIR QUALITY IS SO EGREGIOUSLY WRONG THAT THE TIME HAS COME TO TAKE OCS AIR QUALITY REGULATION AWAY FROM THE DEPARTMENT AND GIVE IT TO THE EPA WHERE IT BELONGED IN THE FIRST PLACE.

EPA, THE CALIFORNIA AIR RESOURCES BOARD, AND MANY OF THE COASTAL AIR POLLUTION CONTROL DISTRICTS HAVE CONSISTENTLY BEEN CRITICIZING THE INTERIOR DEPARTMENT FOR LAX AIR MANAGEMENT REGULATIONS. FOR EXAMPLE, DOI DOES NOT REQUIRE AIR QUALITY CONTROLS OR OFFSETS FOR ANY FACILITY EMITTING LESS THAN 100 TONS OF A POLLUTANT A YEAR ---EVEN THOUGH ALL CALIFORNIA OCS PLATFORMS ARE OFFSHORE NONATTAINMENT AREAS IN SOUTHERN CALIFORNIA AND THE PREVAILING WINDS BRING THIS DIRTY AIR ONSHORE WITHIN HOURS. (PLEASE SEE ATTACHED WIND FLOW PATTERN MAPS).

NEITHER DOES DOI REQUIRE AIR QUALITY CONTROLS ON OCS DRILLING RIGS BECAUSE THEY HAVE BEEN DEFINED AS "TEMPORARY" STRUCTURES UNDER THE DEPARTMENT'S LIBERAL THREE YEAR RULE. TEMPORARY THOUGH THEY MAY BE, DRILLING RIGS ARE SOMETIMES THE WORST OFFENDERS.

FOR EXAMPLE, IF A SINGLE DRILLING RIG WERE LOCATED ONSHORE IN SANTA BARBARA COUNTY, IT WOULD BE THE SECOND LARGEST SINGLE SOURCE OF NO_x EMISSIONS IN THAT COUNTY WHICH IS ALREADY IN NONATTAINMENT FOR OZONE. BUT BECAUSE THAT DRILLING RIG IS LOCATED IN FEDERAL OCS WATERS, THERE IS NOTHING THE COUNTY CAN DO TO REGULATE THOSE EMISSIONS EVEN THOUGH THEY ARE BEING BLOWN ASHORE TO AGGRAVATE THE EXISTING NON-ATTAINMENT SITUATION.

A STATISTIC THAT IS OFTEN USED IN THE PRESS IS THE INTERIOR DEPARTMENT'S CALCULATION THAT THE EMISSIONS FROM ONE EXPLORATORY DRILLING RIG EQUAL THOSE FROM 7,000 CARS BEING DRIVEN 50 MILES.

EVEN MORE TELLING IS A RECENT EPA STUDY WHICH CONCLUDED THAT EXISTING OFFSHORE OPERATIONS IN THE SANTA BARBARA CHANNEL PRODUCE APPROXIMATELY 10% OF THE OZONE IN THAT COUNTY'S AIR BASIN -- AND THAT WAS ON A MUCH BETTER THAN AVERAGE DAY. IN FACT, ON THIS DAY OF THE EPA STUDY, SANTA BARBARA COUNTY WAS TEMPORARILY IN ATTAINMENT.

A 10% CONTRIBUTION TO A BAD AIR QUALITY SITUATION CLEARLY EXCEEDS THE STANDARD OF "SIGNIFICANTLY AFFECTING" ONSHORE AIR QUALITY. IT IS SIGNIFICANTLY ADDING TO A NONATTAINMENT CRISIS.

AS BAD AS THE EXISTING SITUATION APPEARS TO BE, IT ONLY PROMISES TO GET WORSE UNDER THE EXISTING REGIME. PRODUCTION FROM NEW CALIFORNIA OCS OIL RIGS THAT ARE ALREADY UNDER CONSTRUCTION IS EXPECTED TO QUADRUPLE BY THE MID 1990'S. ONE ENVIRONMENTAL IMPACT STATEMENT HAS ALREADY CONCLUDED THAT PUTTING ONE PLANNED OCS PLATFORM OFFSHORE SAN LUIS OBISPO COUNTY IS EXPECTED TO PUSH THAT COUNTY OVER THE EDGE INTO NONATTAINMENT FOR OZONE.

MR. CHAIRMAN, THE ANSWER TO THIS PROBLEM NEED NOT BE AN END TO OFFSHORE OIL PRODUCTION. WHAT WE DO NEED, HOWEVER, IS TO GIVE THE EPA THE AUTHORITY UNDER THE CLEAN AIR ACT TO REGULATE THESE OFFSHORE AIR EMISSIONS.

EPA ALREADY REQUIRES -- QUITE REALISTICALLY -- THAT LOCAL AIR POLLUTION DISTRICTS TAKE INTO ACCOUNT THE ADDED IMPACT OF OFFSHORE EMISSIONS IN DEVELOPING THEIR ONSHORE AIR QUALITY MANAGEMENT PLANS. WHAT IS TOTALLY UNREALISTIC IS THAT THESE LOCAL DISTRICTS HAVE NO AUTHORITY TO REGULATE FEDERAL OCS ACTIVITIES. CONSEQUENTLY, ONSHORE INDUSTRY IS REQUIRED TO MITIGATE THAT MUCH MORE TO MAKE UP FOR THE OCS AIR EMISSIONS.

THIS SIMPLY ISN'T FAIR. IN A 1985 LETTER TO THE INTERIOR DEPARTMENT, EPA STATED THAT SOURCE CONTROL REQUIREMENTS WERE FALLING DISPROPORTIONATELY ON ONSHORE SOURCES AND THAT "ONSHORE INDUSTRIAL GROWTH MAY THUS BE PRECLUDED BY THE IMPACTS OF OFFSHORE DEVELOPMENT."

IT HAS BEEN ARGUED BY ENERGY INTERESTS THAT THIS DOUBLE STANDARD SHOULD BE TOLERATED IN THE INTERESTS OF NATIONAL SECURITY. BUT -- AS ONE OF MANY EXAMPLES -- McDONNELL-DOUGLAS IN ORANGE COUNTY DOES VITAL WORK IN THE INTEREST OF NATIONAL SECURITY, AND THEY DON'T GET A BREAK UNDER THE CLEAN AIR ACT. WHY SHOULD THE OFFSHORE OIL INDUSTRY?

MR. CHAIRMAN, THE RESPONSE OF THE INTERIOR DEPARTMENT TO THIS SITUATION HAS BEEN LESS THAN ADEQUATE. IN FACT, THERE HAS EVEN BEEN SOME BACKSLIDING. IN LEASE SALE #73 IN 1983, THE INTERIOR DEPARTMENT REACHED AN AGREEMENT WITH THE CALIFORNIA AIR RESOURCES BOARD TO POWER OFFSHORE PLATFORMS UNDER THAT LEASE SALE BY ELECTRIC CABLE LAID FROM ONSHORE POWER SOURCES.

THIS WAS A POSITIVE STEP BY THE INTERIOR DEPARTMENT BUT, REGRETTABLY, DOI HAS SINCE RENEGED ON ITS COMMITMENT. DESPITE REPEATED REQUESTS BY INTERESTED PARTIES, THE INTERIOR DEPARTMENT HAS REFUSED TO INCLUDE SIMILAR LANGUAGE IN THEIR RECENTLY PROPOSED 5-YEAR OCS PLAN GOVERNING ALL LEASE SALES FOR THE NEXT FIVE YEARS. INSTEAD, THE 5-YEAR PLANNING DOCUMENT CONTAINS ONLY A VAGUE COMMITMENT TO ADDRESS THE AIR ISSUE ON A CASE-BY-CASE BASIS.

THE MOST RECENT DEVELOPMENT ON THE OCS AIR QUESTION HAS BEEN THE ADVENT OF THE "NEGOTIATED RULEMAKING" PROCESS, OR WHAT HAS COME TO BE KNOWN AS "REG-NEG". REG-NEG IS AN OUTGROWTH OF A SUIT BROUGHT BY THE STATE OF CALIFORNIA AGAINST THE INTERIOR DEPARTMENT ALLEGING INADEQUATE AIR QUALITY CONTROL REGULATIONS.

BEGUN LAST SEPTEMBER, REG-NEG IS EXPECTED TO WIND UP BY THE END OF NEXT MONTH. IT INVOLVES REPRESENTATIVES OF THE INTERIOR DEPARTMENT, EPA, THE STATE, THE OIL INDUSTRY, AND ENVIRONMENTAL GROUPS. THEIR GOAL IS TO REACH A CONSENSUS ON NEW INTERIOR DEPARTMENT AIR QUALITY REGULATIONS.

QUITE FRANKLY, I AM NOT OPTIMISTIC THAT A CONSENSUS WILL BE REACHED BY THESE GROUPS. EVEN IF IT IS, WHATEVER THEY AGREE TO WILL NOT BE FINAL, BUT WILL BE PUBLISHED ONLY AS A PROPOSED RULE BY THE INTERIOR DEPARTMENT, SUBJECT TO CHANGE BY THE DEPARTMENT WHEN PUBLISHED AS A FINAL RULE.

GIVEN THE DEPARTMENT'S RECORD ON THE ISSUE OF CLEAN AIR, I WOULD FEEL MUCH MORE COMFORTABLE IF IT WERE THE EPA INSTEAD OF THE INTERIOR DEPARTMENT THAT WAS CHARGED WITH THE RESPONSIBILITY OF IMPLEMENTING WHATEVER IS AGREED TO IN THIS REG-NEG PROCESS.

IN ANY EVENT, WE WILL KNOW BY THE END OF JULY WHETHER REG-NEG PRODUCES ANYTHING, AND ADJUSTMENTS TO YOUR CLEAN AIR BILL, S. 1351, CAN BE MADE AT THAT TIME IF WARRANTED.

I HAVE ONE MINOR CHANGE TO THE OCS AIR QUALITY SECTION OF YOUR BILL THAT I WOULD PROPOSE AT THIS TIME FOR DISCUSSION PURPOSES ONLY.

CLEAN AIR OFFSETS ARE BECOMING INCREASINGLY SCARCE IN SOUTHERN CALIFORNIA, ESPECIALLY IN THE RELATIVELY NON-INDUSTRIALIZED AREAS. RECOGNIZING THIS, PERHAPS WE SHOULD ALLOW FOR A DIFFERENT KIND OF MITIGATION THAT INVOLVES PAYMENT OF MONIES INTO A CENTRAL REPOSITORY FOR USE IN CLEAN AIR PROGRAMS.

SUCH A FUND WOULD SERVE THE PURPOSE OF ALLOWING THE OFFSHORE INDUSTRY TO PAY INTO THIS FUND IN THE EVENT THAT ONSHORE OFFSETS ARE UNAVAILABLE. THE FUND COULD BE USED FOR A VARIETY OF CLEAN AIR PURPOSES SUCH AS HELPING TO FINANCE RIDE-SHARING PROGRAMS OR HELPING TO CONVERT A FLEET OF CARS TO METHANOL. I AM INFORMED THAT A MITIGATION FEE PROGRAM IS NOT AUTHORIZED UNDER EXISTING LAW, AND I HAVE ATTACHED SUGGESTED LANGUAGE TO MY TESTIMONY.

LET ME EMPHASIZE THAT THIS LANGUAGE IS ONLY INTENDED TO STIMULATE DISCUSSION ON THE SUBJECT OF THE AVAILABILITY OF OFFSETS, AND THAT I LOOK FORWARD TO WORKING WITH THE COMMITTEE FURTHER ON ANY MITIGATION FEE PROPOSAL.

WITH THAT, LET ME CLOSE BY SAYING SIMPLY THAT IT DOESN'T MAKE SENSE TO TREAT A MAJOR POLLUTING EMISSION SOURCE IN A NON-ATTAINMENT AIR BASIN ANY DIFFERENTLY JUST BECAUSE IT HAPPENS TO BE LOCATED IN FEDERAL OCS WATERS. OIL PLATFORMS LOCATED IN STATE WATERS WITHIN THREE MILES OF SHORE ARE COVERED BY THE CLEAN AIR ACT, WHY SHOULD A PLATFORM LOCATED 3.1 MILES OFFSHORE IN FEDERAL WATERS BE REGULATED ANY DIFFERENTLY? LET US DISPENSE WITH THE FICTION THAT THERE EXISTS SOME KIND OF INVISIBLE WALL THAT SEPARATES OCS AIR FROM ONSHORE AIR, AND MAKE THE CLEAN AIR ACT WHOLE WITH REGARD TO ALL AIR.

IN SUPPORT OF MY POSITION, I WOULD LIKE TO SUBMIT FOR THE RECORD STATEMENTS BY CALIFORNIA'S ATTORNEY GENERAL, JOHN VAN de KAMP, THE SANTA BARBARA COUNTY AIR POLLUTION CONTROL DISTRICT OFFICER, JIM RYERSON, AND MY COLLEAGUE FROM NEWPORT BEACH WHO IS CARRYING IDENTICAL OCS AIR LEGISLATION IN THE HOUSE, CONGRESSMAN BOB BADHAM.

THANK YOU FOR YOUR TIME.

MITIGATION FEE PROGRAM PROPOSAL
DISCUSSION DRAFT
6/16/87

THE ADMINISTRATOR BY REGULATION IS AUTHORIZED TO PROVIDE ALTERNATIVE METHODS OF MITIGATION OF EMISSIONS, INCLUDING THE PAYMENT OF A MITIGATION FEE PER TON TO AN ORGANIZATION (APPROVED BY THE ADMINISTRATOR), FOR THE PURPOSE OF PROVIDING EQUIVALENT OR GREATER EMISSION REDUCTIONS IN NEARBY ONSHORE AREAS NOT OTHERWISE PROVIDED IN A STATE IMPLEMENTATION PLAN.

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National Governors' Association

Bill Clinton
Governor of Arkansas
Chairman

Raymond C. Scheppach
Executive Director

STATEMENT ON BEHALF OF THE NATIONAL GOVERNORS' ASSOCIATION

BY MR. KEN HAGG

DEPUTY COMMISSIONER, MASSACHUSETTES DEPARTMENT

OF ENVIRONMENTAL QUALITY ENGINEERING

REGARDING S.1351

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STATEMENT ON BEHALF OF THE NATIONAL GOVERNORS' ASSOCIATION

BY MR. KEN HAGG

DEPUTY COMMISSIONER; MASSACHUSETTES DEPARTMENT

OF ENVIRONMENTAL QUALITY ENGINEERING

REGARDING S.1351

Good morning, Mr. Chairman and members of the committee. I am pleased to have this opportunity to testify on behalf of the National Governors' Association regarding the most immediate and pressing environmental problem facing the nation today: the inability of more than seventy areas in forty states to attain the federal standards for ozone. The Governors are extremely concerned about the serious health consequences that may be borne by as many as eighty million Americans, by the economic penalties that states will suffer in the form of Clean Air Act sanctions, and by the extended period of time the Environmental Protection Agency has taken to provide states with some of the tools we need to do our jobs more effectively.

Let me be blunt about one fact: we need congressional action now to reauthorize the Clean Air Act and deal with ozone and other problems. We need action now before we face a worse crisis when the attainment deadline passes at the end of this year.

The Governors concerns on ozone are driven in large part by the serious health dimension to this problem. There is strong scientific evidence that exposure to ozone at concentrations at or above the federal standards adversely affects public health. EPA Administrator Lee Thomas has testified that elevated ozone levels occurring in many urban areas on hot summer days may reduce lung function, not only for people with respiratory problems, but even for people in good health. He has also testified that repeated exposure may cause long-term damage to the lungs. Carbon monoxide, another pollutant which has not been controlled sufficiently in many areas, poses other health risks. EPA has estimated that nine million Americans with cardiovascular disease are particularly at risk because carbon monoxide acts in the blood supply to form harmful substances.

I would note that the economic or so-called welfare effects of these pollutants, particularly ozone, are also serious. Administrator Thomas has testified that elevated levels of ozone can decrease the yield of several important agricultural crops, and may be contributing to tree damage in California and to forest decline in the eastern United States.

I believe these data establish ozone non-attainment as an environmental and human health problem of major national concern. The Clean Air Act of 1970 provides the regulatory framework for addressing these problems, and the Governors do not believe that the non-attainment provisions of the act need major revision. Under the current law, there has been significant progress toward attainment of air quality standards that protect health. What we badly need now is more effort by EPA, states, and localities, within the context of a nationally comprehensive ozone control strategy that builds on state and federal plans and actions already in place. Clearly states and localities must implement and enforce previous commitments, or face sanctions under the law. Just as clearly, the attainment deadline needs to be extended for areas that are willing to adopt additional control measures. Finally -- but of first importance in our view -- the EPA needs to define and adopt reasonably available controls on additional existing hydrocarbon air pollution sources, and we need to look more closely at our motor vehicle control program.

Let me spell out these elements in more detail.

First, we recognize that not all states and localities have submitted adequate air quality plans or implemented them in an optimum manner. Most state and local agencies earned high marks in EPA's most recent program audit, and some areas have gone beyond what is required in law in their efforts to reduce ozone, but there are some areas which haven't done an adequate job. Many of these problems have been related to insufficient resources, and I would note that federal support for air quality programs has been constant or declining for the last five years. States have been hard-pressed financially and unable to increase their own support significantly.

In any event, we expect that states and localities will meet the requirements of the law and honor their commitments. Those who do not should be subject to sanctions, though we believe sanctions should be tailored to the nature and magnitude of the particular failure.

We believe it is important that sanctions only be imposed for failing to try, not for trying and failing. Areas that have developed and implemented approved air quality plans should not be subject to sanctions. Additional control measures may need to be applied in such areas, but sanctions are not appropriate, in our view.

A second important element in your consideration must involve deadline extensions. We believe EPA should be authorized to provide an extension for up to a statutorily specified period for areas with severe and persistent air quality problems. For an area to qualify for such an extension, increasingly more stringent control strategies would have to be implemented over time.

The provisions introduced by Senator Mitchell to extend deadlines if certain additional control measures are implemented are consistent with our recommendations. Also consistent is the recognition that some areas will require longer than others to attain the standard. However, we do not believe that the most seriously polluted areas of the country can reasonably attain the standard within the ten extra years allowed under the Mitchell bill.

Indeed, EPA and many independent air experts believe that in areas like parts of Southern California, attainment may require several more decades of hard work.

For those areas, we need to identify a program to provide steady progress toward attainment over the longer term. We understand the desire to assure that areas do not avoid taking steps by claiming that miraculous reductions can be attained in the last few years of the extension period, and applaud the bill's requirements for steady progress towards attainment. However, we believe the requirement for equal annual reductions in emissions of eight percent would be extremely difficult to achieve. We believe the reduction target should be achievable, and should be required over a multi-year interval. For example, requiring percentage reductions at four, seven, and ten year intervals would ensure steady progress but allow more time and flexibility in the development of state or local control programs. Reductions at individual sources should be commensurate to the area wide reduction over the extension period, but industries don't reduce their emissions in annual increments, and the bill should allow control stategies to reflect this engineering practice.

We want to complement the sponsors of this legislation for recognizing that not all areas can achieve the standards at the same time, and for allowing differential attainment dates. We believe the bill could be improved, however, by providing that areas which get the five year extension and then fail to attain the standard despite good faith efforts, would automatically become subject to the requirements for the ten year extension, rather than facing sanctions. This is consistent with our view that sanctions should be applied to encourage effort but not to punish those who may fail despite honest attempts.

I would note that the NGA recognizes automobile emission inspection and maintenance as an appropriate strategy, which should be implemented in areas not in attainment. Though it is politically difficult, it has been implemented in over half the states to achieve cost effective emission reductions.

Another extremely important element in the reauthorization of the Clean Air Act is the federal definition and adoption of additional reasonably available controls on hydrocarbon sources, and the expeditious consideration of additional motor vehicle control measures. As others have noted, the EPA has not moved as quickly as we would like to define these controls in recent years. In fact, EPA has not published a single control technology guideline in over three years, and has published only five since 1978. This has made it extremely difficult for most states to require controls on currently unregulated industries. Administrator Thomas has suggested that these unregulated sources, which our state air directors have recommended for national controls, are minor sources in terms of nationwide emissions and contribute only 4 to 8 percent of ozone's precursor pollutants.

While that may be true, these sources without question represent the

Largest uncontrolled sources operating in many areas, and in many areas contribute very significantly to the ozone problem. We do not accept EPA's view that it has responsibility to define controls only on sources which are huge national contributors. The technical and political problems states encounter trying to define controls for whole categories of industrial sources are simply staggering. The inefficiency of expecting individual states to develop and define control technologies for these source categories is compelling. And finally, it is simply not reasonable to expect states, with their limited resources, to develop and adopt controls on a transportable pollutant like ozone, where the principle benefit may be to neighboring or downwind states.

We believe the adoption of minimum federal controls on several currently uncontrolled sources is essential, and should be a priority in the reauthorization of the Clean Air Act. We believe these controls should be required with special emphasis on areas where the emissions contribute to violations of the national air quality standard for ozone, without regard to whether they are in the same area or state as the violation. Without such an approach, it will be extremely difficult to attain the standards in many areas affected by the long-distance transport of ozone, including transport from other states.

In addition to requiring federal controls on additional sources of hydrocarbon pollution, the Governors believe that a key to controlling the long distance or regional transport of air pollutants such as ozone must involve the designation by Congress of regional transport corridors, including both source and receptor states. The EPA should be empowered to designate additional corridors as the need arises. The states within these corridors should be given a reasonable period of time to reach agreement on reducing the transport of air pollutants across state lines. If they fail to reach agreement, the EPA should be authorized to take specific appropriate action in the corridor. We are pleased to note that the Mitchell bill does involve the designation of regional ozone corridors, with the states -- working together with the EPA -- given the opportunity to reach agreement on specific control measures.

One last element which the Governors believe to be important in controlling ozone pollution involves the expeditious consideration of additional motor vehicle control measures. These would include such measures as gasoline evaporation standards, more stringent regulation of heavy duty vehicles, upgraded automobile inspection and maintenance programs, and nationwide onboard control of automobile refueling emissions. We encourage the Committee to look closely at the need for such measures.

In its broad outline I believe the bill introduced by Senator Mitchell is consistent with the Governors' recommendations. It recognizes the need to extend the deadlines in exchange for adopting additional control measures; involves the designation of multistate regions for controlling the transport of ozone; requires additional and reasonable federal controls on existing sources of hydrocarbon pollution; and takes a look at the current motor vehicle control program.

I have attached a copy of the National Governors' Association policy on the Clean Air Act, and would ask that it be made a part of the record of this hearing. I would also note that the Governors have worked closely with the State and Territorial Air Pollution Program Administrators in the development of our respective policies, which are consistent. You have heard from them independently, and we commend their views to your attention.

In closing, I would simply reiterate that the Governors believe your action on the Clean Air Act is essential this year. I believe the bill introduced by Senator Mitchell is broadly consistent with the framework of the NGA's views on ozone. While adjustments must certainly be made during the course of your consideration, we applaud it as a good place to begin the debate, and hope to work closely with you in advancing this bill through the Senate.

South Coast
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Statement of

Norton Younglove, Chairman of the Board
South Coast Air Quality Management District
California

before the

Subcommittee on Environmental Protection
Senate Committee on Environment and Public Works
Honorable George J. Mitchell, Chairman

Senate Bill 1351

* * *

June 16, 1987
Washington, D.C.

* * *

Mr. Chairman and members of the Subcommittee, my name is Norton Younglove. I am a Supervisor for Riverside County and am Chairman of the South Coast Air Quality Management District Board which encompasses the counties of Los Angeles, Orange, Riverside, and the non-desert portion of San Bernardino. I have with me today Dr. James M. Lents who is the Executive Officer of the District.

The over 12 million people of our South Coast Air Basin face the most serious air pollution problem in the nation and we appreciate the opportunity to appear here before you to express our thoughts concerning the need for federal legislation to help this area, as well as other polluted areas, achieve air quality which protects the health of our citizens. This need has particular relevance if we are to keep the clean-up process moving. The actions taken thus far were based on the 1977 Clean Air Act amendments aimed at reaching attainment by the end of 1987. The 1979 and 1982 control plans have been acted upon with limited yet positive results. Unfortunately, EPA has not been effective in focusing the post-1987 effort. The present system of sanctions, applied in the absence of a constructive and realistic clean-up program, only punishes a citizenry which already suffers the penalties of dirty air. We in the South Coast Basin want to focus our efforts on a positive approach: we intend to develop an "attainment" plan, rather than a "non-attainment" plan.

EXTENSION OF DEADLINE AND REALISTIC SANCTIONS ARE NEEDED

Before meaningful nationwide progress can be made, Congress must act in two ways.

First, Congress must extend the present deadline and provide guidance as to what constitutes an acceptable rate of progress in the future. This national goal-setting will insure consistency. As our District pointed out in earlier testimony to your Subcommittee, the expected rate of progress should be ambitious yet within the realm of possibility so as not to frustrate the process. Similarly, Congress must come to the aid of state and local programs in the form of providing minimum technology guidance and regulations to ensure that sources outside the control of most local jurisdictions share equally in the clean-up effort. In this latter regard, I refer to ships in harbor, airplanes during take-off and landing, railroad engines, interstate commerce vehicles, work performed for the military, development of offshore oil, and the like.

The second area of support needed from the federal government is a set of sanctions framed within the context of a realistic clean-up plan which imposes penalties for failure to follow through on promised clean-up commitments, rather than solely for failure to meet exact ambient improvement requirements. The sanctions are needed to insure that state and local decision makers do not retreat from important control decisions simply because such decisions might impact coveted local industries or call for moderate lifestyle changes. These sanctions should be measured; that is, the severity of sanctions ought to be related to the degree of failure to achieve clean-up commitments. Otherwise sanctions can be so Draconian or counterproductive that they are not applied.

Mr. Chairman, the South Coast Air Quality Management District congratulates you on the introduction of Senate bill 1351, the subject of today's hearing. This bill provides a creative mechanism for addressing the unmet air quality needs of the country. It should be recognized that the annual emissions reductions proposed in 1351, when considered from the perspective of today's available technology, represent an exceptionally ambitious undertaking. While we recognize that attainment of the goals is predicated to a major degree on the development and implementation of certain technological breakthroughs, we still feel this is a major step in the right direction. Please do recognize that, for technology reasons, some of this cannot now be done. But with additional efforts it can be done in the near term. We support this bill and urge that you act quickly. We have some suggestions that we believe would make the bill more workable.

SOURCES OF NITROGEN OXIDE SHOULD NOT BE EXEMPT FROM "RACT"

In adding subsection 172(d)(4), we do not understand the value in exempting sources of oxides of nitrogen from reasonably available control technology requirements. In light of the contribution of oxides of nitrogen to ozone, fine particulates, acid deposition, and impaired visibility, we believe that reasonable controls are a minimum requirement for sources of nitrogen oxides in all ozone non-attainment areas.

PM_{10} STANDARD SHOULD BE INCLUDED IN AMENDMENTS

Congress should also address the PM_{10} particulate standard recently promulgated by EPA. This standard is long overdue and our District is pleased to see it promulgated. Unfortunately, it cannot be met in our area, nor some other areas, within the five-year time frame envisioned by the present Clean Air Act. Portions of our area are fifty to one hundred percent above this standard. The pollutants causing these exceedances are sulfates, nitrates, and carbon particulates originating from the same mobile and stationary sources that have proven to be difficult to clean up in order to attain ozone and carbon monoxide standards.

ANNUAL EMISSIONS REDUCTIONS PROGRAM DIFFICULT BUT NEEDED

We endorse the annual emissions reductions concept embodied in subsection 172(e)(2)(B). The public has a right to regular emissions reductions as clean air is pursued.

The studies of control measures embodied in the District's short-range and long-range planning documents, which are submitted with this statement, indicate that the overall 8 percent annual emission reductions as described in the new subparagraph (B) for organic compounds and oxides of nitrogen may be achievable although with great difficulty in the South Coast Air Basin.

Unfortunately, the carbon monoxide problem in all nonattainment areas is due primarily to mobile sources. Present fleet turnover rates will not provide the annual 8 percent reduction required for this pollutant. A stringent, but more realistic, value should be chosen after evaluating the effects of the new car programs and improved motor vehicle inspection and maintenance. We agree with the provision which allows an area two years from the date of adoption of this bill to place such a program into effect. The 1989 date included in this bill will be appropriate if the bill passes within the next six months.

MILITARY/AEROSPACE REQUIREMENTS

Additional reductions must still be obtained from mobile sources. However, since 50% of the stationary source inventory is in solvents and coatings, for many of which non-reactive substitutes are not readily available, major emissions reductions will be called for by users of these products, particularly the aerospace and defense industries.

Federal assistance is urgently needed to force new technology to meet military and aerospace needs without adversely affecting air quality. Some military requirements still require more reactive substances in some cases.

REGULAR REDUCTIONS OF STATIONARY SOURCE EMISSIONS ARE BENEFICIAL

The expectation of a regular reduction in individual stationary source emissions embodied in subsections 172(e)(2)(C) and (E) will be very beneficial to the clean-up process. The present rulemaking process rewards industry for weakening and delaying rules. Under this proposed legislation, if industries delay or weaken rules, they will have a significant cost to pay. In turn, these funds will be available for clean-up elsewhere. We suggest that the fee be increased if an industry fails to make progress. We recommend that the requirements with respect to individual stationary source reductions parallel the requirements for regional emission reductions.

It is important that any fees required by this legislation be in addition to, and not in place of, current assessments by states or Districts. For example, the basic emission fees set forth in new subsection 172(e)(2)(D) are less than the fees presently charged in our area with the exception of fees charged for carbon monoxide. We charge less for carbon monoxide since it takes more of it to create an equivalent environmental hazard than other contaminants. Our fees are as follows for 1987/88:

Reactive Hydrocarbons	$ 241 per ton
Nitrogen Oxides	$ 139 per ton
Particulates	$ 184 per ton
Sulfur Oxides	$ 167 per ton
Carbon monoxide	$ 2.10 per ton

REASONABLY AVAILABLE CONTROL TECHNOLOGY ("RACT") DEFINITION NEEDS FURTHER CLARIFICATION

The definition added to section 171 for "reasonably available control technology" needs further clarification. The bill should be more specific, including what role economics plays beyond noting that it is not the only factor.

We are further concerned that in setting standards for coatings and solvents, EPA is bound by this definition of RACT but federal regions and areas vary significantly. As previously stated, we cannot meet the stated goals without new technology. Congress should force development of new technology in these areas by requiring a given percentage reduction as it did in 1970 for automobiles. Because these are national standards, the statute must either specifically authorize state and regional regulations which require a greater degree of emission reductions than the federal standards or a national standard strict enough to meet the air quality needs of all areas of the country--the philosophical basis for federal auto emission standards. We would prefer a national standard.

AN ALTERNATIVE RE: SANCTIONS

The modifications to subsection 110(a)(2)(I) concerning sanctions continues the present construction ban approach. We suggest that an enhanced offset requirement can achieve better results. An alternative Section 110 sanction might be a 4:1 offset requirement for new sources. In addition, new source review needs to be looked at in terms not only of the stationary source, but also in terms of its effect on the increasingly serious job/housing imbalance.

OPPOSE EXCLUDING RESOURCE RECOVERY FROM MAJOR SOURCE

We oppose the exclusion of resource recovery facilities from the definition of major source. These facilities have proven to be significant, and controversial, emission sources in the South Coast Air Basin. Site vicinity offsets should be required whenever such sources meet the definition of major source.

SEWAGE TREATMENT

We support the limitations imposed on added discharge to publicly-owned sewage treatment works embodied in the amendments to subsection 176(b) as an alternative to sanctions that hinder our efforts by removing grants to clean the air. Those limitations should apply only to new growth and should not inhibit funding for clean-up of public health-related problems of existing populations.

OUTER CONTINENTAL SHELF ACTIVITIES NEED TO BE ADDRESSED

Our Board is very concerned about the possible adverse air impacts from the proposed outer continental shelf oil development. In agreement with our concerns, and with our strong support, Senators Wilson and Cranston from California introduced Senate Bill 235. The addition in Senate Bill 1351 of a new section 129 to address outer continental shelf and vessel activities is very much needed. All activities on and adjacent to our coast should share in the clean-up process. This added section will provide the needed support to see that these offshore activities do not inhibit the clean-up process.

MOBILE SOURCE STANDARDS ARE ESSENTIAL

Finally, the ambitious mobile source standards and programs embodied in Title II of this bill are commendable and, in the South Coast Air Basin, imperative. Without them it will be impossible for us to meet the requirements of this law and public health. If all stationary sources were removed from this Basin by the year 2000, clean air standards would still not be met. Emissions associated with mobile sources, by themselves, will still be causing violations of the standards. We urge you to adopt the most stringent mobile source provisions possible. Mobile sources must continue to be cleaned up if attainment is to be achieved.

The fuel regulations delineated in the amendment to Section 211 call for sulfur content limitations of 0.05 percent by weight and a 9 psi Reid vapor pressure. These limits are reasonable and practicable. They are already operative in California and are achieving emission reductions.

CONCLUSION

Mr. Chairman and members of the Subcommittee, that concludes my remarks. We will be happy to answer any questions.

(caa616)

Statement of
Michael P. Walsh

Before The
Senate Environment and Public Works Committee

June 16, 1987

NOTE: The attachments to this statement have been retained in committee files.

I. INTRODUCTION

My name is Michael P. Walsh and I am an independent technical consultant in the motor vehicle air pollution control field. My clients have included many government agencies, international bodies such as the World Health Organization, the United Nations Environment Program (UNEP), the United Nations Industrial Development Organization (UNIDO), and the World Bank as well as private companies engaged in the manufacture of pollution control devices. Just recently, I completed studies of Inspection and Maintenance and Heavy Duty Vehicle Emissions Controls for the Swedish Environmental Protection Board, and have done similar projects in Germany, Switzerland and Hong Kong. I am an advisor to the 10 Club, a group of primarily European countries, committed to substantial reductions in motor vehicle NOx. Within the US, I assisted the Denver Metropolitan Air Quality Council in designing steps to address its diesel particulate problem and just a few weeks ago helped organize and chaired a 1 day workshop for the World Resources Institute addressing short and long term transportation related energy and environment problems. Also within the past year, I have been a consultant to this Committee in the development of the bill under consideration.

From 1974 to 1981 I was employed by the US Environmental Protection Agency; during the last three of those years, I was the Director of the Office of Mobile Source Air Pollution Control. During my watch, the Office devoted major efforts to expanding the number of I/M programs around the country, and adopted the first diesel particulate standard in the world. New vehicle certification was substantially streamlined. In addition comprehensive truck regulations for HC and CO were adopted, NOx and particulate standards were proposed, and the entire heavy duty truck compliance program was revamped. This included the adoption of a new transient test procedure. Also during this time the current auto standards - 0.41 grams per mile HC, 3.4 CO and 1.0 NOx - went into effect.

I am presenting this statement as a private citizen, not as a representative of any government agency or company.

In my testimony, I would like to make several points:

1. The health and environmental need for more stringent pollution controls is great. Specifically, reductions in hydrocarbons, nitrogen oxides, carbon monoxide, diesel particulate, lead in gasoline, and sulfur in diesel fuel are necessary to achieve healthy air.

2. Technology for light duty vehicles has advanced beyond the levels needed to achieve today's Federal standards and we should take advantage of it. This

great progress has occurred during the past 15 years in direct response to strong Congressional mandates.

3. Heavy duty vehicle controls have advanced much more slowly over this same time frame, reflecting in part the absence of specific requirements in the current law. Stringent NOx and particulate controls were delayed by EPA for many years and, as a result, serious control efforts have only been underway a relatively short time.

4. Tighter vehicle standards will result in significantly lower in use emissions. In the case of NOx, I estimate that this bill will lower motor vehicle emissions by from 30 to 40 percent. For hydrocarbons, the reductions will be 20 percent or more over what would otherwise occur, depending on overall vehicle and mileage growth rates. Even though CO standards aren't tightened, the longer useful life provision and the better overall technology which will be fostered by the Bill, will bring about actual CO improvements.

5. The auto manufacturers correctly pointed out during their testimony in March that the real objective of the motor vehicle control program is to reduce in-use vehicle emissions and improve air quality. In several ways, S1351 should bring about this result:

a) By lowering standards - the experience over the last decade has been that as standards have been lowered, in use vehicle emissions were also lowered.

b) By increasing the useful life requirements which should improve the durability of emissions control components.

c) By increasing the overall number of and quality of the I/M programs that exist across the country.

d) By expanding the scope of I/M programs to include I/M for NOx.

e) By improving fuel quality by lowering the sulfur content of diesel fuel.

6. Beyond non attainment issues, mobile sources are a significant contributor to toxic emissions in this country; this bill will help reduce toxic emissions from mobile sources by reducing overall hydrocarbons and diesel particles.

7. By taking advantage of light duty vehicle emission control advances which have occurred, and by fostering developments in heavy duty controls, S1351, of course, is primarily addressed at improving the US environment; however, I believe it will enable many other countries to also improve and since many environmental problems transcend national boundaries, S1351 should help to improve our global environment.

I would now like to elaborate on some of these points.

II. NEED FOR GREATER, STATUTORILY MANDATED CONTROLS

It has been ten years since the Clean Air Act was amended. This law was designed in 1977 to provide an overall structure to facilitate achievement of the health based National Ambient Air Quality Standards (NAAQS) as quickly as possible, but in no case later than this year. While progress has occurred -- a 10 percent decline in ozone levels between 1979 and 1985, 15 percent fewer ozone nonattainment areas since 1980, 33 percent less exceedences of the ozone standard -- the problem is far from solved. Nearly 40 states contain at least one nonattainment area, and many states contain several.

A. Ozone

The ozone problem is a special concern. First, the problem is widespread and pervasive and appears likely to be a long term problem in up to forty of our largest metropolitan areas unless significant further controls are required. Almost 80 million Americans currently reside in areas which exceed the current air quality standard; many of these individuals suffer eye irritation, cough and chest discomfort, headaches, upper respiratory illness, increased asthma attacks and reduced pulmonary function as a result of this problem.

In addition, as noted in recent testimony before the Congress by EPA Administrator Thomas, new studies indicate;

> "that elevated ozone concentrations occurring on some days during the hot summers in many of our urban areas may reduce lung function, not only for people with preexisting respiratory problems, but even for people in good health. This reduction in lung function may be accompanied by symptomatic effects such as chest pain and shortness of breath. Observed effects from exposures of 1 to 2 hours with heavy exercise include measurable reductions in normal lung function in a portion (15 - 30 percent) of the healthy population that is particularly sensitive to ozone."

Numerous studies have also demonstrated that photochemical pollutants seriously impair the growth of certain crops. For example, the Congressional Research Service of the US Library of Congress found that, in the United States alone, "the short-run or immediate impacts of ozone are evident in annual crop yield decreases estimated at $1.9 to $4.3 billion." In the longer term, CRS points out that "ozone damage has resulted in disappearance of high yielding crops from localities and even from the genetic base." Other negative impacts include seed yield reduction of 10 to 22 percent in field corn, up to 33 percent reductions in wheat yields and from 24 to 50 percent reductions in soybean yields.

Photochemical smog results from chemical reactions involving both hydrocarbons and nitrogen oxides in the presence of sunlight. Motor vehicles are major sources of both of these precursor pollutants. While historically the major strategy for reducing smog has focused on tight restrictions on hydrocarbon emissions (a strategy continued with the hydrocarbon controls in this Bill), NOx control is also necessary, particularly with regard to the highest and, therefore, most hazardous levels. This conclusion was verified by a panel of experts convened by the National Commission on Air Quality (NCAQ), which found that, "NOx control as well as HC control is needed."

1. The most severe air pollution periods consist of multi day episodes during which NOx and other smog precursors have long periods of time to interact; under such conditions, even higher ozone values would result if more NOx were emitted because there would be "a high degree of day to day carryover of such key pollutants as NO_2, peroxyacetyl nitrate (PAN), formaldehyde (HCHO) and higher aldehydes, and nitrous acid (HONO)." These pollutants "are the major early morning sources of hydroxyl radicals (OH) which drive the oxidation processes involved in photochemical smog."

2. Along with ozone, a wide spectrum of hazardous components tends to be associated with photochemical smog episodes. The NCAQ expert panel also expressed concern that higher NOx emission rates would lead to higher ambient concentrations "of other nitrogen bearing pollutants, e.g., NO_2, nitric acid, peroxyacetyl nitrate (PAN), and other nitrates." These latter compounds are traditionally associated with ozone as part of the photochemical smog family.

3. NOx control will also reduce ozone concentrations downwind in transport situations; since many densely populated areas of the United States are "downwind" of other urban centers, NOx and HC control seems the only reasonable course of action to protect public health. As recently noted by a prominent researcher in this field, (see Attachment A)

> "Recent research results from our research group indicate there is a critical need to consider controls on both nitrogen oxides and reactive hydrocarbons if overall oxidant levels are to be lowered...A critical implication of these findings is that without controls on nitrogen oxides the current control policies will simply change the urban ozone problem into a regional scale one."

The California Air Resources Board in a study which supported that state's adoption of a 0.4 gpm NOx standard for passenger cars, light duty trucks and medium duty vehicles concluded, "Since 1978, a period during which both HC and NOx emissions have decreased, daily peak smog season ozone levels have declined significantly in both the central and eastern portions of the basin. It is in these areas that ozone concentrations are the highest and affect the health of both sensitive and healthy individuals."

B. Carbon Monoxide

Carbon monoxide results almost entirely from motor vehicle emissions.

While great progress has occurred in reducing ambient CO levels across the United States - during the last ten years, the national composite average decreased by 36 percent and the average number of exceedences decreased by 92 percent - the problem is far from resolved. About 85 of our major metropolitan areas with a population approaching 30 million currently exceed the carbon monoxide air quality standard.

Administrator Thomas also indicated that as many as 15 areas in the United States may have intermittent carbon monoxide (CO) problems that could prevent attainment for many years. The importance of CO control has been reinforced by a recent study of tunnel workers in New York City. (Attachment B) As noted by the authors:

> "Given the magnitude of the effect that we have observed for a very prevalent cause of death, exposure to vehicular exhaust, more specifically to CO, in combination with underlying heart disease or other cardiovascular risk factors could be responsible for a very large number of preventable deaths."

C. Particulate

Many areas already experience unhealthy air quality levels for particulate (PM10) matter. Estimates are that from 70 to as many as 160 areas are above the air quality standard for this pollutant. PM10 comes from many sources but diesel powered vehicles contribute a significant percentage in urban areas. These particles in urban air are of concern because a strong correlation between suspended particulate and variations in infant mortality and total mortality rates has been established. Further, clear evidence emerges from the body of epidemiological literature that implicates particles in aggravating disease among bronchitics, asthmatics, cardiovascular patients and people with influenza. Any significant increase in diesel particulate emissions would add to the difficulty of solving this problem.

Beyond the overall impact on PM10, diesel particles raise a special health concern because they are very small (averaging about 0.2 microns in size). Small particles, which are much more likely to be deposited in the deepest recesses of the lung (alveolar region) and which require much longer periods of time to be cleared from the respiratory tract, have a greater potential to adversely affect human health than larger particles. In addition, when emitted, they remain suspended in the air near the breathing zones of people for long periods of time. For these reasons, the Harvard University Health Effects Project concluded that "particulate pollution should be a public health concern because, even at current ambient concentrations, it may be contributing to excess mortality and morbidity. Furthermore, our recent analyses...indicate that fine particles (FP) and sulfates (SO_4) are among the most harmful particles to public health."

In addition, diesel particulate has also been singled out as especially hazardous and toxic because of its composition. As noted in the Harvard project "most of the toxic trace metals, organics, or acidic materials emitted from automobiles or fossil fuel combustion are highly concentrated in the fine particle fraction". The US EPA has noted that up to 10,000 chemicals may be adsorbed on the surface of diesel particles and drawn deep into the lung with them. Many of these chemical compounds are known to be mutagenic in short term bioassays, and to be capable of causing cancer in laboratory animals.

Other, epidemiological studies have tended to reinforce these concerns. For example, a 1983 study of heavy construction workers found positive trends in lung cancer by length of union membership and a higher than expected rate among retirees. Further, a pilot study of US railroad workers, conducted by researchers at Harvard, indicated that the risk ratio for respiratory cancer in diesel exposed subjects relative to unexposed subjects could be as great as 1.42, i.e., the possibility of developing cancer may be 42 percent greater in individuals exposed to diesels than in individuals which are not exposed. The follow up study which has now been completed appears to be equally alarming - "Using multiple logistic regression to adjust for smoking and asbestos exposure, workers age 64 or less at the time of death with lung cancer had increased relative odds (1.2-1.4, p less than 0.05) of having worked in diesel exhaust exposed jobs."

During late 1985, the results of several new studies were presented which increased concerns regarding adverse health effects from diesel particulate emissions. In particular;

1. Stoeber (Fraunhofer Institute) reported on carcinogenicity in rodents after long term high dose diesel inhalation. On both mice and rats, malignant tumors increased with exposure to diesel exhaust. With the mice, however, gaseous phase emissions seemed most

important whereas with the rats the particles seemed to be the main cause.
2. Brightwell (Battelle-Geneva) reported that unfiltered diesel exhaust produced an increase in lung tumor incidence from 1% to 40%; gasoline emissions reportedly showed no effect.

Beyond the adverse health effects, diesel particles are a nuisance. They degrade aesthetics and material usage through soiling and may contribute directly, or in conjunction with other pollutants, to structural damage by means of corrosion or erosion.

They also contribute to impaired visibility. Because of their composition (primarily carbon based) and size (in the size range of 0.2 microns), they are very high light absorbers and scatterers and therefore have the potential to be especially harmful to visibility.

Finally, exhaust odor from diesel buses has been a significant public concern for many years. Problems associated with diesel odor include "nausea, headache, and coughing; upsetting of sleep, irritation of eyes, nose and throat; and destruction of the sense of well-being and enjoyment of food, home, and external environment."

D. Toxics

Air toxics, such as benzene, have over recent years become an important focus of air pollution control efforts. Often referred to as "non-criteria pollutants" because air quality criteria have not been published by the US Environmental Protection Agency (EPA) to support promulgation of a National Ambient Air Quality Standard (NAAQS), air toxics have increasingly been the focus of federal, state, and local study and regulation. Activities have been centered on identifying pollutants of concern, evaluating sources and resulting ambient concentrations, and characterizing the health impacts associated with those concentrations.

Historically, stationary industrial sources of air toxics have been the first subject of air toxics regulations and guidelines, in part because of existing permitting authorities at the state and local level. However, in many areas of the United States, area sources, especially mobile sources, appear to be a substantial contributor to the overall health risks associated with air toxics. A variety of studies have found that in individual metropolitan areas mobile sources are one of the most important and possibly the most important source category in terms of contributions to health risks associated with air toxics.

Attachment C explores the potential contributions of mobile sources to ambient concentrations of air toxics, along with the associated health risks. The conclusions of this study are worth summarizing:

1. Unregulated mobile source emissions represent a potentially significant source of toxic compounds.

2. Control of exhaust and evaporative hydrocarbons generally lowers toxic emissions as well; catalytic converters tend to selectively eliminate a greater proportion of the more biologically active compounds and therefore are very beneficial for toxic control.

3. Metallic additives are not desirable because of their well known toxic properties.

4. While alcohol fuel blends are of questionable benefit and may actually increase aldehydes and formaldehyde, neat methanol used on vehicles equipped with catalytic converters has the potential to substantially lower toxic emissions from diesel and gasoline fueled vehicles.

5. To the extent that I/M programs tend to maximize the effectiveness of existing hydrocarbon emissions control systems, they are an attractive tool to minimize mobile source toxic pollution.

E. Acid Deposition

Acid deposition reduces visibility, and in sensitive aquatic systems such as small lakes and streams can destroy fish and other forms of life. Most experts conclude that acid deposition has a major role in the destruction of forests throughout central Europe and North America.

Acid deposition results from the chemical transformation and transport of sulfur dioxide and nitrogen oxides. The major strategy for addressing the acid rain problem should be reductions of sulfur emissions; however NOx controls are important and will be increasingly so over the next ten to fifteen years. There are several reasons:

1. NOx emissions are responsible for about one third of the acidity in rainfall.
2. While emissions of SOx are expected to stabilize or hopefully even decline in the future, NOx emissions are projected to increase dramatically. In fact, the 1981 NAS Report indicated that NOx emissions could exceed sulfur emissions by the end of the century.
3. Under certain circumstances, such as the Spring snow melt, nitric acid is disproportionately responsible for fish kills in lakes and streams.

At the 1982 International Conference on Acidification of the Environment in Stockholm, it was concluded that the "acidification problem is serious and, even if deposition remains stable, deterioration of soil and water will continue and may increase unless additional control measures are implemented and existing control policies are strengthened." Therefore, the assembled experts from around the world continued, "we know enough to be able to say:

> Unless we reduce our emissions of sulfur and nitrogen oxides, more lakes and streams, more groundwater, more soils and forests will become acidified and we will be adding to the economic and aesthetic damage we have already done...Best available technology which is economically feasible should also be applied to reduce NOx emissions from both stationary and mobile sources."

This conclusion was reinforced during the International Conference of Ministers on Acid Rain which took place in Ottawa, Canada during March of 1985. The final declaration of the 10 participating countries commits each to "take measures to decrease effectively the total annual emissions of nitrogen oxides from stationary and mobile sources as soon as possible."

F. Lead

The extremely serious health hazard associated with lead is no longer debateable. Unfortunately, recent studies suggest that lead causes health risks at exposure levels even lower than previously believed. For example, a recent study (Attachment D) concluded that fetuses might be adversely affected by exposure to lead at concentrations well below the current US limit of 25 micrograms per deciliter of blood. In tests of 249 children studied between birth and age 2, the researchers found that children born with lead levels of at least 10 mg/dl scored nearly seven percent lower on developmental tests than children with little or no lead in their blood.

G. Direct NO_2 Health Effects

Nitrogen dioxide (NO_2) is linked with increased susceptibility to respiratory infection, increased airway resistance in asthmatics, and decreased pulmonary function. Even short term exposures to NO_2 have resulted in a wide ranging group of respiratory problems in school children - cough, runny nose and sore throat are among the most common - as well as increased sensitivity to bronchoconstrictors by asthmatics.

The World Health Organization concluded that a maximum 1 hour exposure of 190-320 micrograms per cubic meter (0.10-0.17 ppm) should be consistent with the protection of public health and that this exposure should not be exceeded more than once per month. The State of California has also adopted a short term NO_2 standard, 0.25 ppm averaged over one hour, to protect public health.

While nitrogen dioxide alone does not significantly reduce visual range, it is responsible for a portion of the brownish coloration observed in polluted air. In addition, nitrogen dioxide and particulate nitrates also contribute to pollutant haze.

Oxides of nitrogen have also been shown to effect vegetation adversely. This effect is even more pronounced when nitrogen dioxide and sulfur dioxide occur simultaneously. Further, nitrogen dioxide has been found to cause deleterious effects on a wide variety of textile dyes and fabrics, plastics and rubber.

Lest it appear that the various concerns related to NOx are going away, it is important to note that NOx emissions have approximately tripled in the US since 1950. According to the latest EPA air quality and emissions trends report, national nitrogen oxide emissions increased by 900,000 metric tons per year from 1983 to 1985; from transportation sources alone, they increased by about 300,000 tons.

H. Global Warming

As shown in Figure 1, a gradual build up of CO_2 is occurring, raising the specter of significant global warming in the next century unless the rate of increase can be slowed. Substantially greater efficiencies in the transportation sector will be necessary to address this problem. To the degree that vehicle usage is restrained and more efficient fuels encouraged, the ultimate degree of global warming can be reduced or at least delayed.

Some evidence indicates that carbon monoxide may contribute to global warming. As pointed out by Dr. Gordon MacDonald at a recent World Resources Institute Symposium, "Carbon monoxide could thus be indirectly responsible for increasing greenhouse warming by 20 to 40% through raising the levels of methane and ozone...Carbon monoxide participates in the formation of ozone, and also in the destruction of hydroxyl radicals, which are principal sinks for ozone and methane greenhouse gases. Because carbon monoxide reacts rapidly with hydroxyl, increased levels of carbon monoxide will lead to higher regional concentrations of ozone and methane. measures to reduce carbon monoxide emissions will assist in controlling greenhouse warming."

III. PROSPECTS FOR CONTROL

The standards contained in this bill are technologically feasible. Many vehicles already achieve these levels; for most others, either EPA or California have adopted the requirements after finding that they are technologically feasible. In a few cases, while not adopted by either EPA or California, one or the other or both Agencies have found them to be feasible. Each specific new standard is listed below:

	Current	Revised
Automobiles (Light Duty Vehicles)[1]	grams/mile	grams/mile
Carbon Monoxide (CO)	3.4	3.4[2]
Hydrocarbons (HC)	0.41	0.25 (1992)
Oxides of Nitrogen (NOx)	1.0	0.4 (1990)
Particulates	0.2	0.08 (1990)
Light Duty Trucks (Above 6000 lbs. GVW)	grams/mile	grams/mile
Carbon Monoxide (CO)	10.0	5.0 (1990)
Hydrocarbons (HC)	0.8	0.50 (1990)
Oxides of Nitrogen (NOx)	2.3 1.7 (1990)	0.5 (1990)
Particulates	0.26[3]	0.08 (1990)
Heavy Duty Trucks	grams/brake horsepower hour	
Oxides of Nitrogen (NOx)	10.6 6.0 (1990) 5.0 (1991)	4.0 (1991) 1.7 (1995)
Particulates[4]	0.25 (1991) 0.10 (1994)	0.25 (1991)[5] 0.10 (1994)[5]
Motorcycles	grams/mile	grams/mile
Carbon Monoxide (CO)	19.2	3.4
Hydrocarbons (HC)	8	0.25

Notes:

1. The definition of light duty vehicles is modified to include most light duty trucks with a gross vehicle weight of less than 6000 lbs. GVW. Current standards for these vehicles are 10 gpm CO, 0.8 HC and 2.3 NOx, with the NOx level reduced to 1.2 gpm in 1988. Particulate standards for these vehicles are 0.26 gpm.

2. The current California 7.0 gpm CO standard will be reduced to the nationwide 3.4 gpm level.

3. In the Federal Register of June 4, 1987, EPA proposed a relaxation of this standard for a few years followed by a tightening. Specifically, EPA proposed 0.5 in 1987, 0.45 in 1988 through 1990 and 0.13 in 1991.

4. Buses are required to meet the 0.1 standard in 1991 rather than 1994.

5. These standards do not differ from the current regulatory requirements but incorporate them specifically in the statute.

IV.PROGRESS TO DATE

To put further control efforts in context, it is important to note the degree of progress which has occurred to date. Figures 2, 3 and 4 show the automobile emissions standards for HC, CO and NOx, respectively, along with the average in use performance of these cars. These data indicate several important facts:

1. Automobile standards have been reduced very significantly over the last 20 years. especially for HC and CO and to a lesser extent for NOx.
2. As a general matter, tighter standards have resulted in lower in use emissions performance of vehicles - it has not been a paper exercise.
3. Average in use emissions have generally been higher than the respective standards, especially for CO and HC. In use NOx performance is much closer to the standards than either CO or HC.
4. In absolute terms, the shortfall between the standards and the in use vehicle performance has tended to be narrowed as the standards have been tightened.

Unfortunately, emissions reductions from other vehicle categories have been significantly less than from autos. For example, even though many light trucks are used as personal vehicles in much the same manner as cars the vast majority of time, their emissions standards are more lenient. Heavy trucks, especially diesels, are much less controlled than cars at present. HC and CO requirements for gasoline trucks have only recently been significantly tightened and NOx requirements for all heavy trucks will only start toward significant control in 1990 under current requirements.

According to the latest EPA estimates, as illustrated in Figure 5, the overall reductions in emissions from transportation sources across the US during the last decade were 88 percent for lead, 25 percent for CO, and 30 percent for HC. These reductions occurred despite a 26 percent increase in vehicle miles travelled during this same time period. (For CO, the reductions in crowded central business districts where ambient CO levels tended to be highest are even greater because the mileage growth has been less.) However, because standards for these pollutants have been more lenient or implemented later, overall reductions have been only 1 percent for NOx and there has been no reduction in particulate. As noted earlier, during the last two years, in fact, NOx emissions from transportation increased by 300,000 tons.

Figure 6 shows that during 1985, transportation sources were responsible for 73 percent of nationwide lead emissions, 70 percent of the CO, 34 percent of the volatile organic compounds (HC), 45 percent of the NOx, and 18 percent of the particulate. In some cities, the mobile source contribution is even higher. Therefore, significant reductions of these pollutants from mobile sources has the potential to result in substantial overall improvements.

In this context, it is useful to examine the standards contained in the Bill.

V. Passenger Cars - LDV

Passenger car and light truck control to the degree recommended in the Bill - 0.25 HC, 0.40 NOx, while retaining 3.4 CO - is feasible and is actually being achieved by many individual vehicles today. This is illustrated by analysis of 1987 certification data which shows that the average gasoline fueled car car emits only about 0.2 gpm HC, 1.91 CO and 0.37 NOx, compared to standards of 0.41, 3.4 and 1.0, respectively. Approximately half the vehicles certified for 1987 already meet the standards in the Bill.

Based in part on these data and the critical need for more NOx control, the California Air Resources Board in 1986 determined that 0.4 NOx for passenger cars was necessary and feasible and cost effective. It adopted this standard, to be phased in starting in 1989 and estimated the costs to be about $25 to $30 per vehicle.

California has also testified that 0.25 is feasible and cost effective for HC. They estimated a total cost per vehicle of approximately 25$ per vehicle and an overall cost effectiveness of about 80 cents per pound (or about 1600$ per ton) for this control.

Manufacturers have raised two principle arguments regarding the feasibility of the standards - the trade off between NOx and CO control, and the difficulty of achieving standards in use.

With regard to the CO versus NOx trade off, the manufacturers argue that while California vehicles achieve very low NOx levels, this is because the California CO standard is 7.0 rather than the federal standard of 3.4. The data do not support the manufacturers conclusion. For example, a regression was carried out to determine the potential correlation between CO and NOx emission rates. The results, illustrated in Figure 7, show in fact no conflict exists between controlling the two pollutants; in fact, the data suggests that lower NOx should lead to slightly lower CO. An independent analysis carried out by the CARB tends to reach the same conclusion. CARB found that 109 out of 120 engine families that had certification levels below 0.4 NOx in California also had CO levels below 3.4 CO.

Figure 8 shows the results of a regression analysis of each of the gaseous pollutants versus vehicle test weight. Again the results indicate that there is very little linkage between emissions and weight.

The second auto industry argument is that even if they could certify vehicles to these low levels, the standards are not achievable in use, especially with a 100,000 mile useful life requirement. While recognizing that low certification levels are far from a guarantee of equally low in use performance, I must note the irony of hearing this argument from the manufacturers today when on occasion in the past when my office at EPA was responsible for certification, manufacturers were known to argue that certificates should be given to allow them to sell vehicles which either could not pass certification or which were marginal at best, arguing in effect that they could do even better in use than in certification. However, I basically agree that certification is a somewhat idealized screen of vehicles to establish the fundamental capability of a design. To achieve good in use performance, this design must be carefully translated to large numbers of vehicles on the assembly lines using high quality components. Greater quality control efforts which no doubt would result from the tighter assembly line compliance requirements as contained in S1351 should help in this regard. In addition, lower trace lead levels in unleaded gasoline and more advanced emissions control components, particularly more durable catalysts, better air fuel management systems, and electronics should also help. As recently noted in a letter to Senator Chafee by the CARB, "the technology, which manufacturers are expected to utilize for lowering NMHC (non methane hydrocarbons) emissions, includes more durable and efficient close coupled catalytic converters. These single bed converters are located in, or close to, the engine exhaust manifold and "light off" quickly to very effectively lower cold start HC [and CO] emissions." In other words, the advanced technology fostered by the tighter standards contained in this bill should make it easier to achieve low in use emission levels.

VI. Light Trucks up to 8500 lbs. - LDT

Light trucks are in most characteristics very similar if not identical to cars, usually equipped with identical engines and drive trains, etc., and are usually driven in much the same fashion; therefore, they should be able to apply the same technology. The lighter category of these trucks (those under 6000 lbs.) should be able to achieve the same emissions levels as those achieved by cars. Heavier light trucks between 6000 and 8500 lbs. GVW should have no difficulty achieving the standards in this bill which are adjusted to compensate for their additional weight.

VII. Light Duty Diesel Particulate.

The State of California has adopted a standard of 0.08 grams per mile to go into effect in 1989, one year earlier than required by this bill. When EPA first adopted the 0.2 gram per mile particulate standard in 1980, it expected that most vehicles would require the use of particulate trap oxidizers to meet the standard. Engine controls have exceeded EPA's expectations (as well as the levels the auto industry testified to EPA it could achieve), indicating once again how well auto industry engineers are able to respond when faced with a difficult challenge. However, trap technology has also been coming along (as indicated by the first generation Mercedes systems). Further improvements will be fostered by making it clear that current emissions rates are not satisfactory. They are still much higher than from gasoline fueled vehicles.

Some might argue that these standards are unnecessary because very few light duty diesels are presently sold in this country - less than one-half of 1% of new cars. However, as we found out during the seventies, demand for diesels can increase dramatically when energy prices rise. Based on the increased dependence on imported oil which is unfortunately occurring, it would be a mistake to be complacent about the future. (While not the direct focus of this bill, an aggressive energy conservation effort in the transportation sector could result in many environmental benefits including less global warming and fewer non attainment problems.)

VIII. Heavy Duty Trucks

Many medium trucks (8500-14,000 lbs. GVW) are still gasoline fueled and these will need to be equipped with oxidation catalysts to achieve EPA's current HC and CO standards. In my judgment, it is possible to further lower the NOx standard to 1.7 grams per brake horsepower hour for this class of vehicles. Adoption of a 1.7 NOx standard will require the use of the already proven 3way catalyst technology to these engines instead of oxidation catalysts. As noted by EPA in 1981, "It is the staffs judgement that achievement of the full 75 percent reduction, i.e., a reduction to the level of the 1.01 g/BHP-hr emission target level, is technologically feasible through the application of three way catalyst technology...Additional NOx control, if necessary, could also be provided by EGR." (see page 59 of EPA's 1981 Regulatory Analysis,)

The diesel truck NOx standard can also be reduced below the current requirements. Some trucks are already certifying below 4 grams per brake horsepower hour (g/BHP-hr), the proposed 1991 standard, and with the use of methanol, levels close to 2 g/BHP-hr have already been demonstrated.

S1351 would codify the 1991 and 1994 heavy duty vehicle particulate standards. Writing these standards into the law is extremely important given EPA's track record of delaying the effective dates of standards after they were adopted. EPA's two year delay of the light duty diesel particulate standard is but one example.

It is important to note that any engines unable to achieve stringent truck requirements could still be sold if non conformance penalties (NCP's) are paid by the manufacturer. The alternative of setting the standard at the level the poorest engines can achieve is inconsistent with the health and welfare need for maximum feasible control and with the concept of basing standards on the level achieved by the technological leader not the technological laggard. This philosophy has guided the nation in forcing technological developments for HC, CO, NOx and particulates from cars. If we have learned only one thing from the Clean Air Act, it should be that greatest progress occurs when stringent standards with firm deadlines are adopted.

It is worth highlighting one particular category of existing vehicles - urban buses. Urban buses are important well beyond their numbers for several reasons:

1. Urban buses tend to be used almost continuously in the most densely populated urban corridors where the greatest number of people are concentrated.
2. A large number of such vehicles are already in use, many more will come into service before meaningful federal controls of new buses take effect in 1991, and these vehicles will remain in use for many years before they are replaced.
3. The emission rates from these vehicles are quite high per mile driven compared to other mobile sources.

Taking all these factors into account, retrofitting these vehicles with diesel particulate traps or converting them to alternative fuels are very attractive options (see Attachments E and F).

IX. ENVIRONMENTAL IMPACT

Figures 9 through 16 show that significant emissions reductions are possible based on the standards contained in S1351 compared to current levels. For NOx, the more stringent vehicle standards will result in reductions per year by the time the fleet fully turns over of from 1.6 to 2.5 million tons per year depending on future vehicle growth, about 34 percent of total on road mobile source NOx. Extending the useful life for cars to 100,000 miles or 10 years would eliminate another 150 to 250 thousand tons per year, by my estimate.

For HC, the tighter standards would eliminate from 175,000 to almost 300,000 tons per year, about 6 percent of mobile source emissions. The longer useful life is even more important than tighter standards for this pollutant, increasing the reduction to between 500,000 and 1,000,000 tons per year, about 20 percent of mobile source emissions. Some have argued than these reductions are too modest compared to the reductions which have already been achieved. However, with very few exceptions (lowering the fuel volatility as called for in this bill being one notable exception), the easy steps with very large reductions have already been implemented and as noted earlier they have not been sufficient to achieve clean, healthy air. We need to implement a series of less significant but reasonable control measures to achieve our goal. The standards in this bill, in my judgement, easily meet these criteria.

Beyond the NOx and HC emissions reductions, the technologies fostered by the tighter standards should also bring about improvements to the in use performance of cars for CO. As recently noted by the state of California Air Resources Board, "We expect that nearly all passenger cars will emit CO emissions at a rate approaching 3.4 grams per mile in use as a result of further NMHC (non methane hydrocarbon) control.

In addition, an important additional benefit of lowering hydrocarbon emissions generally, and of lowering diesel particulate emissions will be to reduce urban toxic emissions throughout the country. As recently noted by EPA, mobile sources are responsible for between 400 and 2850 cancer cases per year.

X. INSPECTION AND MAINTENANCE

Inspection and Maintenance (I/M) programs are intended to detect and bring about the repair of in-use vehicles with excessive emissions levels. They help to maximize the benefits the public realizes from the emission controls installed on their vehicles by encouraging proper vehicle maintenance. I/M has been required as a part of the State Implementation Plans (SIPs) pursuant to Sections 110 and 172 of the Clean Air Act for those states unable to achieve compliance with the CO or ozone air quality standards by the end of 1982.

Inspection and maintenance has a prominent role in many of the most important components of the US Motor Vehicle Control Program. To the extent that I/M identifies, relatively rapidly, vehicles which may be out of compliance this information can be fed back to the Recall and Assembly Line Test programs thereby allowing the EPA to focus investigations and test orders on the most appropriate vehicles. It is key to the Warranty program by which individuals can identify equipment defects and it is a requisite for the Warranty against performance defects which are detected by a Federally prescribed short inspection test. It is also the major ingredient in the anti-tampering, anti-misfueling effort, as the threat of inspection failure is considered a strong deterrent to tampering and misfueling. For example, within the same geographic region, without I/M, 14 percent of all passenger cars have been subjected to fuel switching; this drops to

10 percent with I/M, and 6 percent with I/M and anti tampering checks. Without I/M, therefore, it seems clear that all elements of the in use emissions performance of vehicles are significantly weakened.

While most I/M programs in effect in the US have been adopted in response to Federal requirements, they differ significantly in terms of implementation details. This is because EPA, in specifying the program requirements, recognized the wide variety of local conditions (e.g., labor and land costs, local - state interrelationships, existence of or lack of a safety inspection program, etc.). In this environment, three main mechanisms for implementing I/M programs have evolved. First is the so-called private garage system in which the inspection is conducted by a local gas station or repair facility which is licensed for this purpose by the government after meeting certain requirements. The most successful of these types of programs include sealed, computerized analyzers which provide increased confidence to all concerned that the inspection test is run correctly and objectively. Alternatively, state operated lanes have been installed solely to conduct inspections (often including safety as well as emissions). Finally, to avoid the expense to the state associated with building centralized facilities, private contractors can be hired to build and operate such a system at no capital cost to the government; the complete expense is paid for over time by fees charged to owners of inspected vehicles. Administrative costs for the government can also be provided by these fees.

Recently EPA has audited some of these programs to see which are working best and which are falling short of their potential. While many programs are working very well, it is clear that many programs need to be improved. The major problems are related to low failure rates (substantially fewer vehicles failing the program than anticipated based upon the test standards adopted) in decentralized I/M programs with manual analyzers. Two of the major problems are poor instrument quality control and the abuse of repair cost limits which allow repairs to be waived if the cost of repairing these vehicles is estimated to be greater than a predetermined value. S1351 will help to solve these problems by requiring computerized, better quality analyzers and raising the cut off for repair cost waivers.

Almost all existing I/M programs focus primarily on HC and CO control. However, as noted earlier, greater reductions in both NOx and particulate from in use vehicles would also be desirable. Attachment H summarizes some of the potential benefits of expanding the scope of I/M to cover these pollutants, as called for in S1351.

XI. SULFUR IN DIESEL FUEL

The Bill would also limit the sulfur content of any motor vehicle diesel fuel to a maximum of 0.05 percent by weight.

The issue of reducing sulfur in diesel fuel was analyzed by a contractor for EPA and it is appropriate to summarize some of the conclusions here:

1. Reducing fuel sulfur would reduce SO_2 emissions and the sulfate fraction of diesel particulates, and would indirectly reduce ambient levels of sulfate particles and acid deposition.
2. It is feasible to reduce the sulfur from current levels of about 0.3% to 0.05% without reducing fuel availability.
3. Some reduction in diesel fuel aromatic content would tend to result automatically from the changes introduced to reduce diesel fuel sulfur.
4. Based on limited data, it appears that the maintenance savings due to the sulfur reduction would be about four times the increased refining costs needed to bring it about.

California has already adopted regulations requiring low sulfur diesel fuel (0.05%) in the South Coast Air Quality Management District, and is evaluating mandatory low sulfur fuel statewide.

XII. INTERNATIONAL CONSEQUENCES

Across the entire globe, motor vehicle usage has increased tremendously. In 1950, less than 50 million cars were on the world's roads, 85 percent of them in North America. Only one generation later, the car population is approaching 350 million, almost a seven fold increase. Outside North America, the growth has been most dramatic, from slightly under 7 million in 1950 to 125 million by 1980. While the rate of growth has slowed in the highly industrialized countries, population pressures, increased urbanization and industrialization is accelerating motor vehicle growth in other areas. While Europe and the US are growing moderately, the global population is expected to double in this timeframe, driven by more than a doubling in Asia and an almost 150% increase in Latin America. Beyond the overall growth in population, an increasing portion of Asia's and South America's people are moving to cities, driving up the global urban population. One result is that global automobile production is projected to continue to grow substantially over the next decade.

Because of this growth and the increasing urbanization, the proportion of the world experiencing serious environmental problems from motor vehicle emissions continues to increase. (see Attachment G) In addition to the serious pollution problems which have plagued the highly industrialized areas of the world, many rapidly industrializing areas are now starting to note similar air pollution problems. Cities such as Sao Paulo, Seoul, Mexico City, Singapore, Hong Kong, Manila, Bangkok, Taipei and Beijing are each starting to experience unacceptable air quality or are projecting that they will in the relatively near future.

Fortunately, in large measure due to the US motor vehicle control program, technologies have been developed which have made it possible to dramatically lower emissions from cars and increasingly countries around the world have been taking advantage of them. For example, Austria, the Netherlands and the Federal Republic of Germany have adopted innovative economic incentive approaches to encourage purchase of low pollution vehicles. Canada has decided to implement US standards for the 1988 Model Year, while Austria, Norway, Sweden and Switzerland will do so by 1989. Australia has adopted standards similar to those used in the US in the mid to late 1970's when catalyst technology was first introduced. Even rapidly industrializing, developing countries such as Brazil and Korea have adopted stringent emissions regulations. Current US auto standards will go into effect in Korea by the middle of this year while Brazil has scheduled a ten year phase in program.

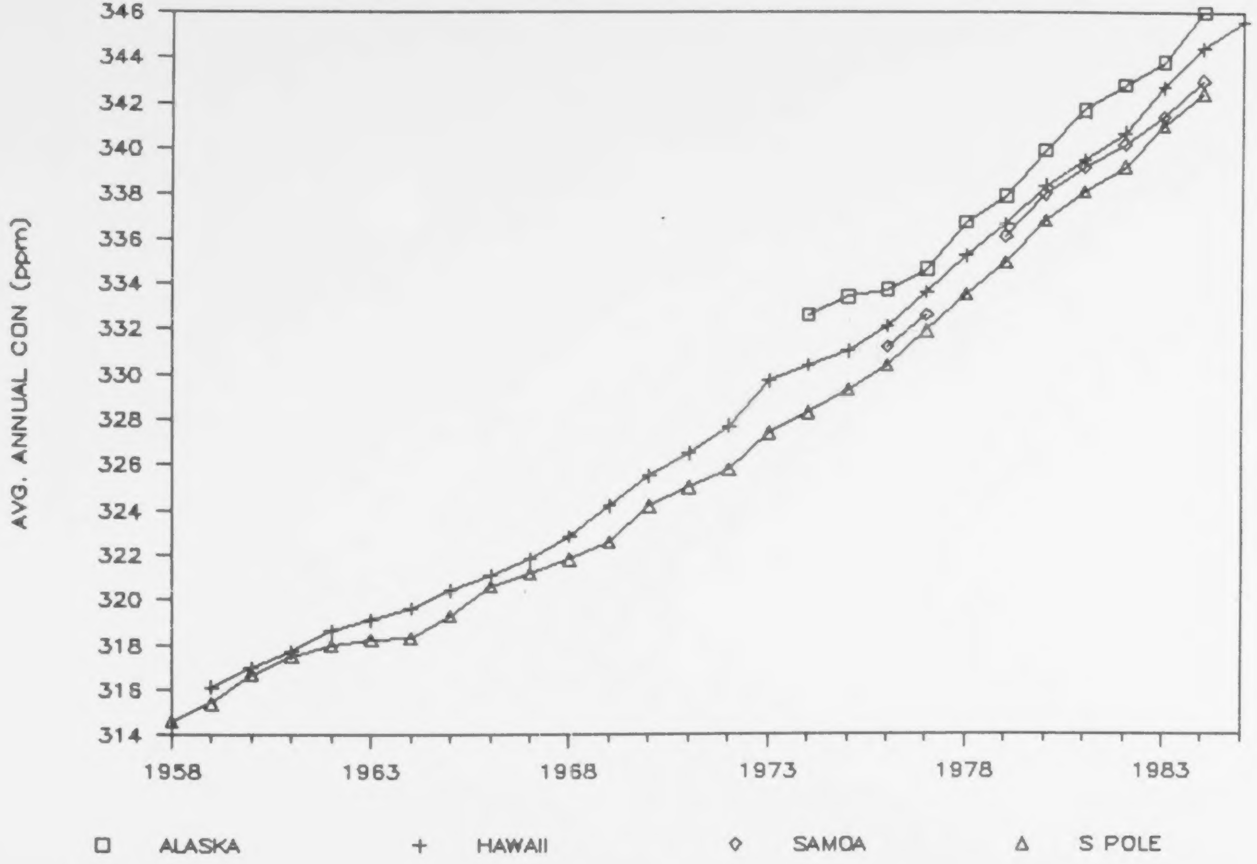
Continuing progress in developing lower polluting vehicles in the US, therefore has the potential to significantly improve the environment in many other parts of the world in addition to the US. One side benefit for the US is that since more and more of the serious environmental challenges which we are starting to address transcend US national boundaries (e.g., long range transport problems, global warming, etc.), improvements in other countries will also tend to improve our environment.

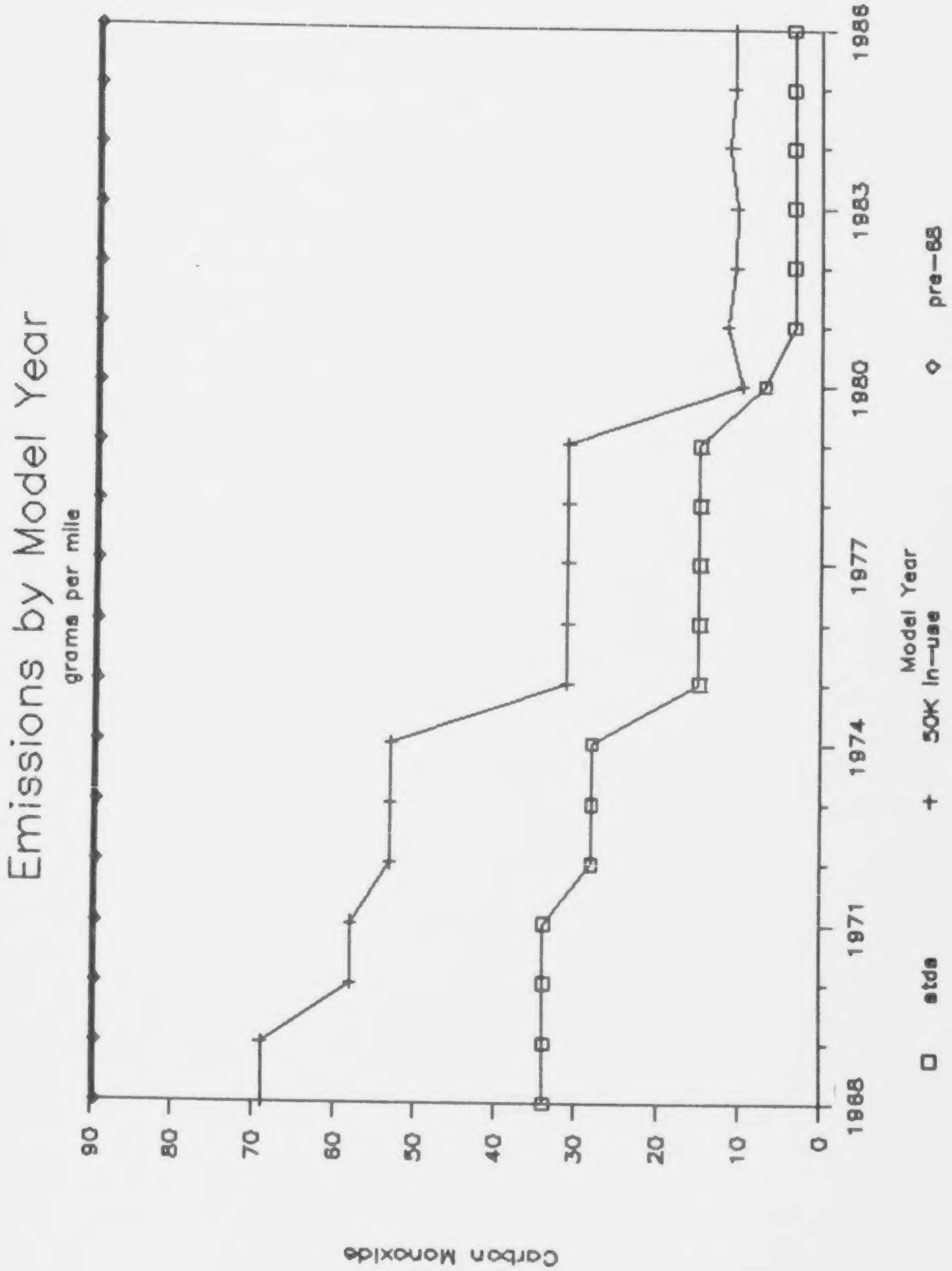
XIII.CONCLUSIONS

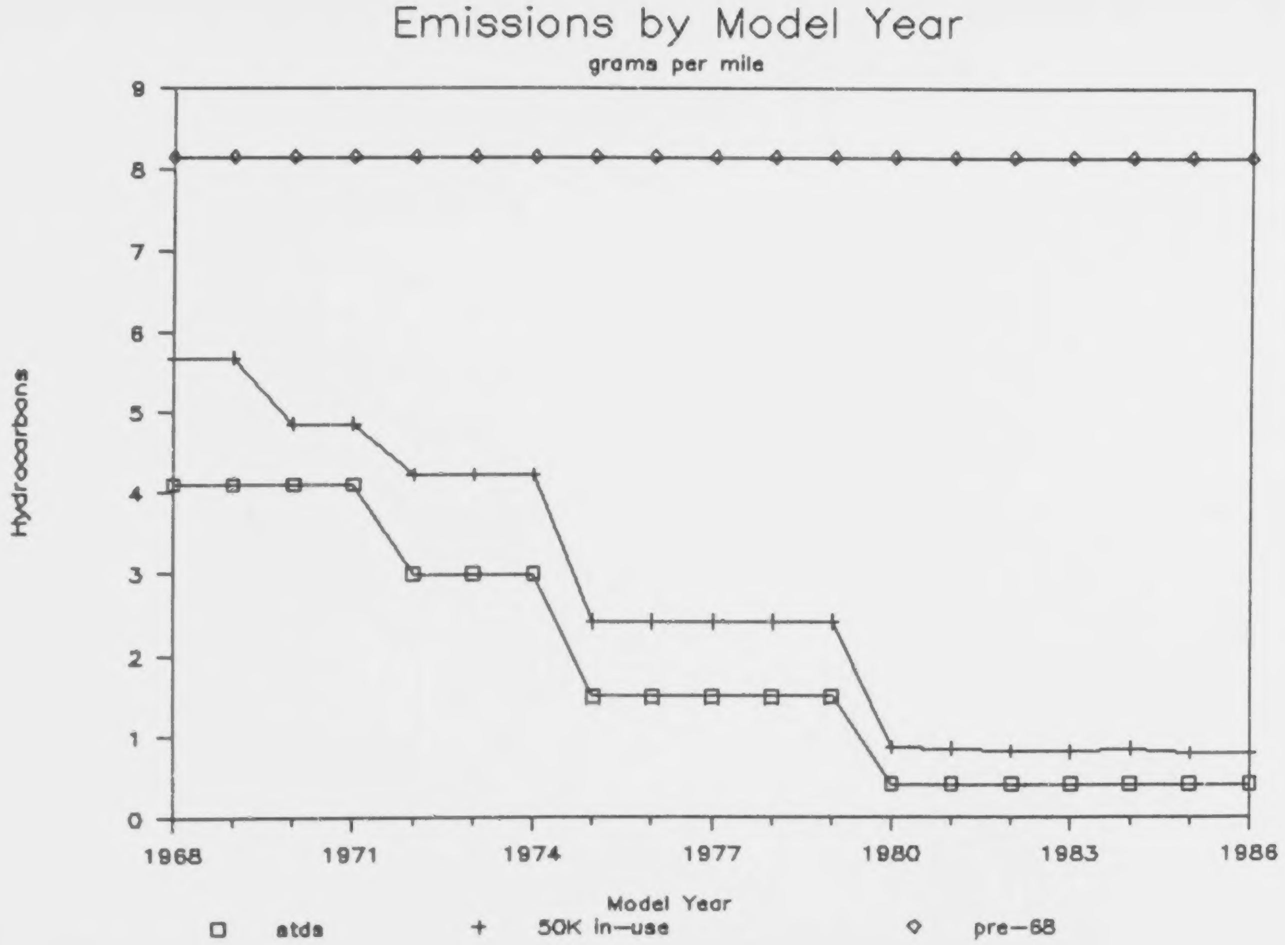
It has been ten years since the Clean Air Act has been amended. It seems reasonable to conclude that the provisions adopted now will shape the national air pollution control effort for the remainder of this century. Improving the existing program is necessary not only to fine tune the various elements to address previously existing problems, but also to deal with a number of new and serious problems. Technological and programmatic solutions exist to address these problems but they will not be implemented and the air will not be made clean and healthy unless this Congress mandates very specific standards and steps. S1351 does this and is,therefore, in my judgement worthy of strong support.

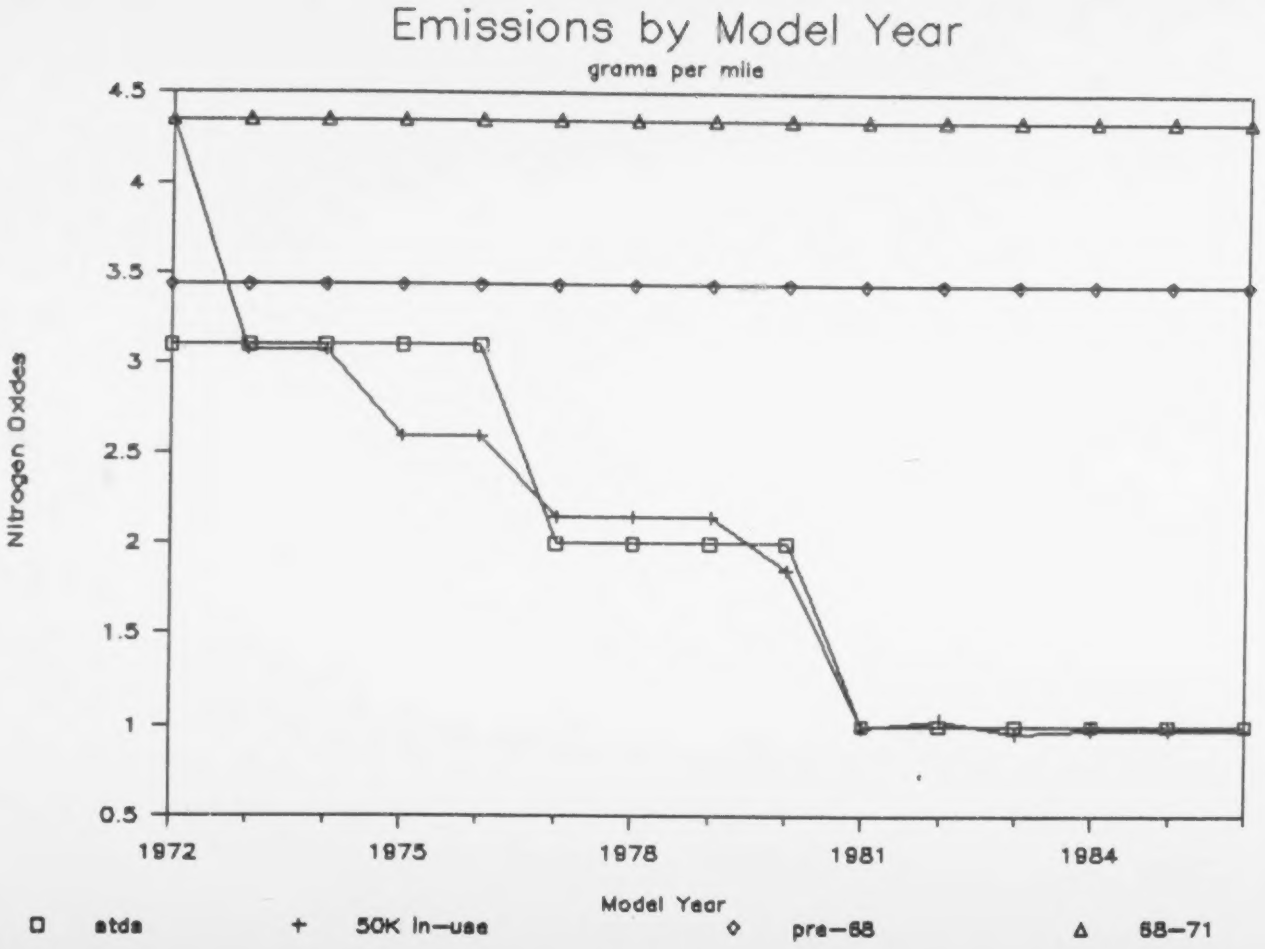
I hope this information is halpful to the Committee. I would be happy to respond to any questions you might have at this time.

CARBON DIOXIDE CONCENTRATIONS

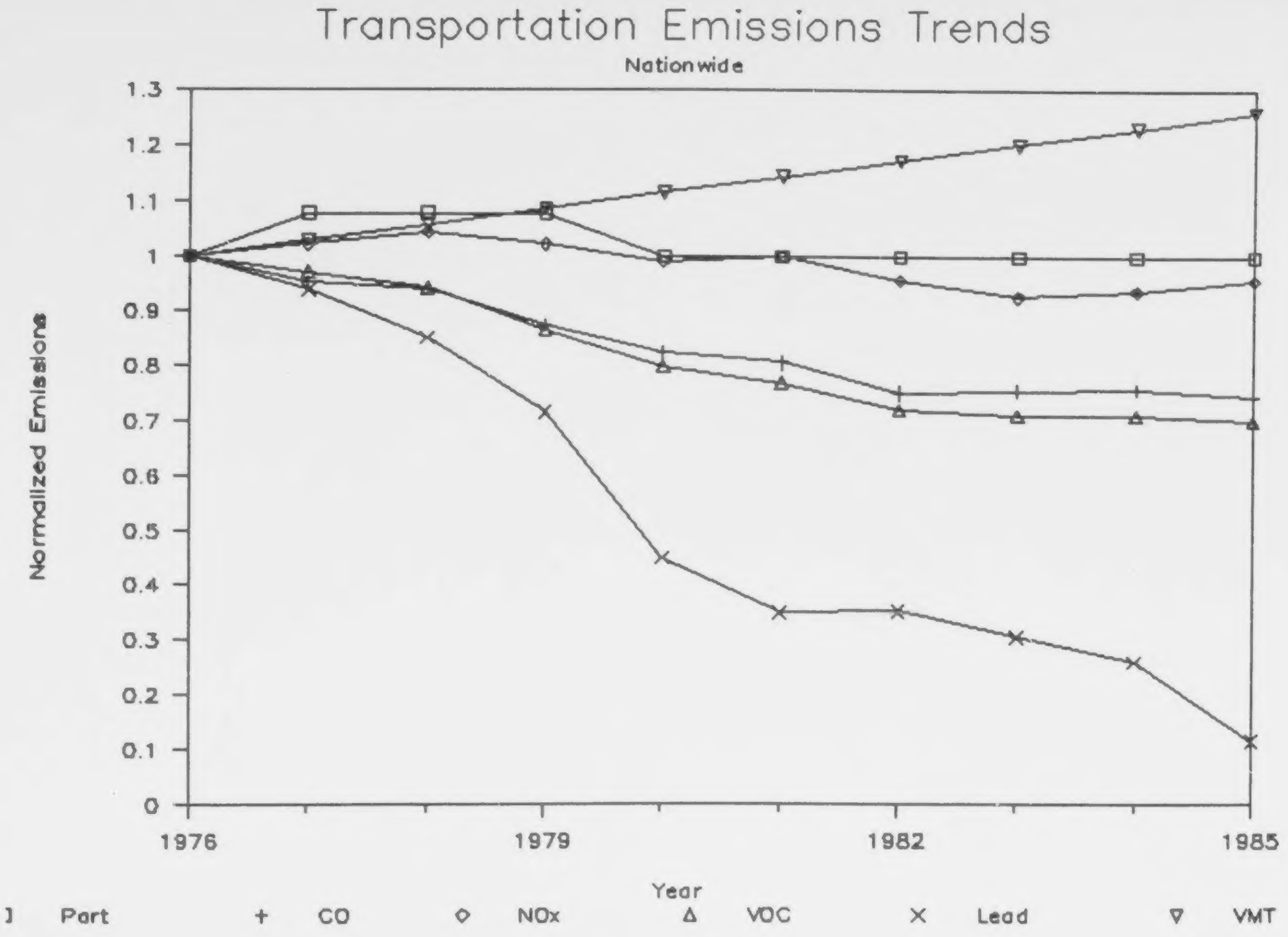


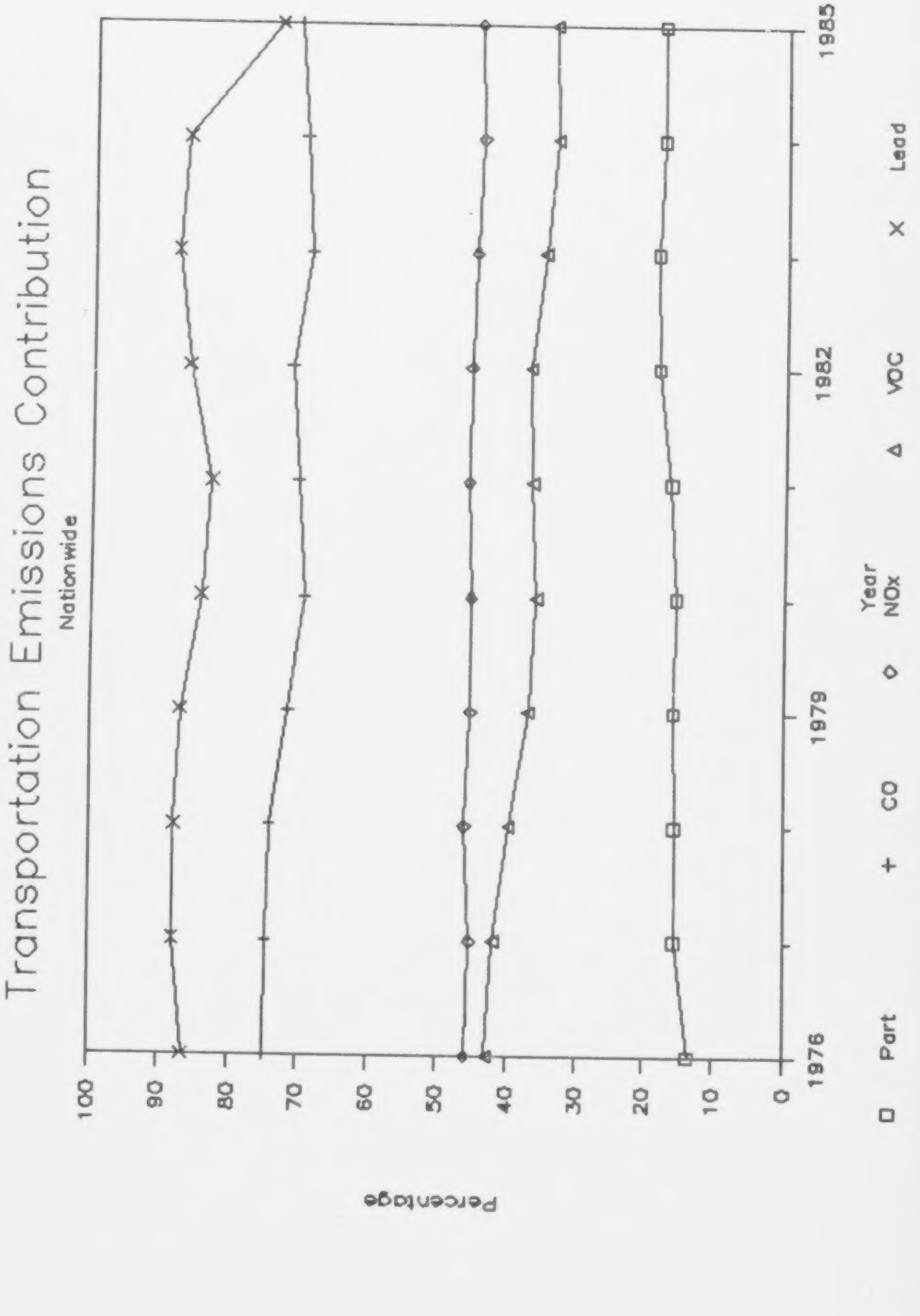

Emissions by Model Year
grams per mile
Carbon Monoxide
90
80
70
60
50
40
30
20
10
0
1968
1971
1974
1977
1980
1983
1986
Model Year
□ stds
+ 50K In-use
◇ pre-68

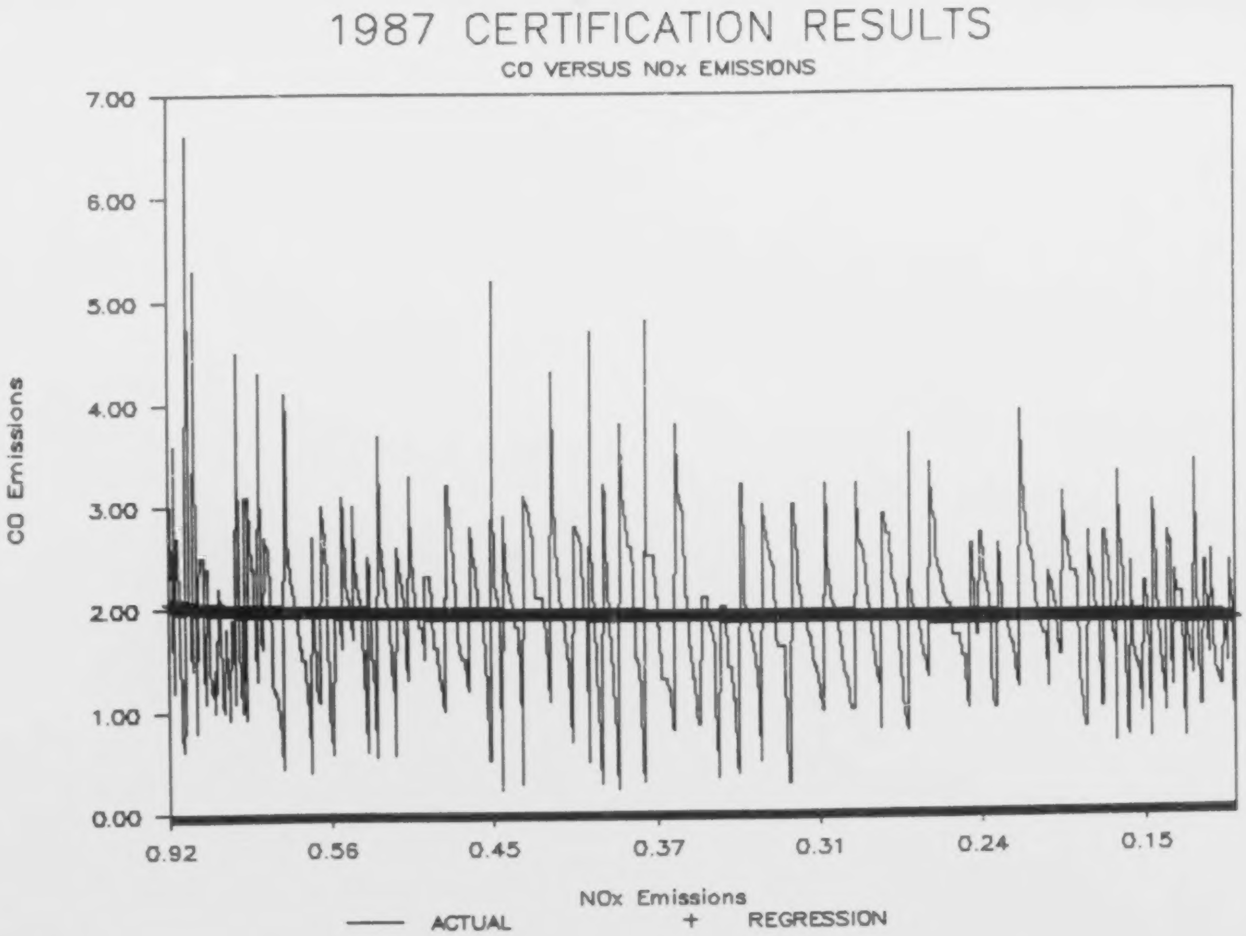

Emissions by Model Year
grams per mile
Hydrocarbons
9
8
7
6
5
4
3
2
1
0
1968
1971
1974
1977
1980
1983
1986
Model Year
□ atds
+ 50K in-use
◇ pre-68

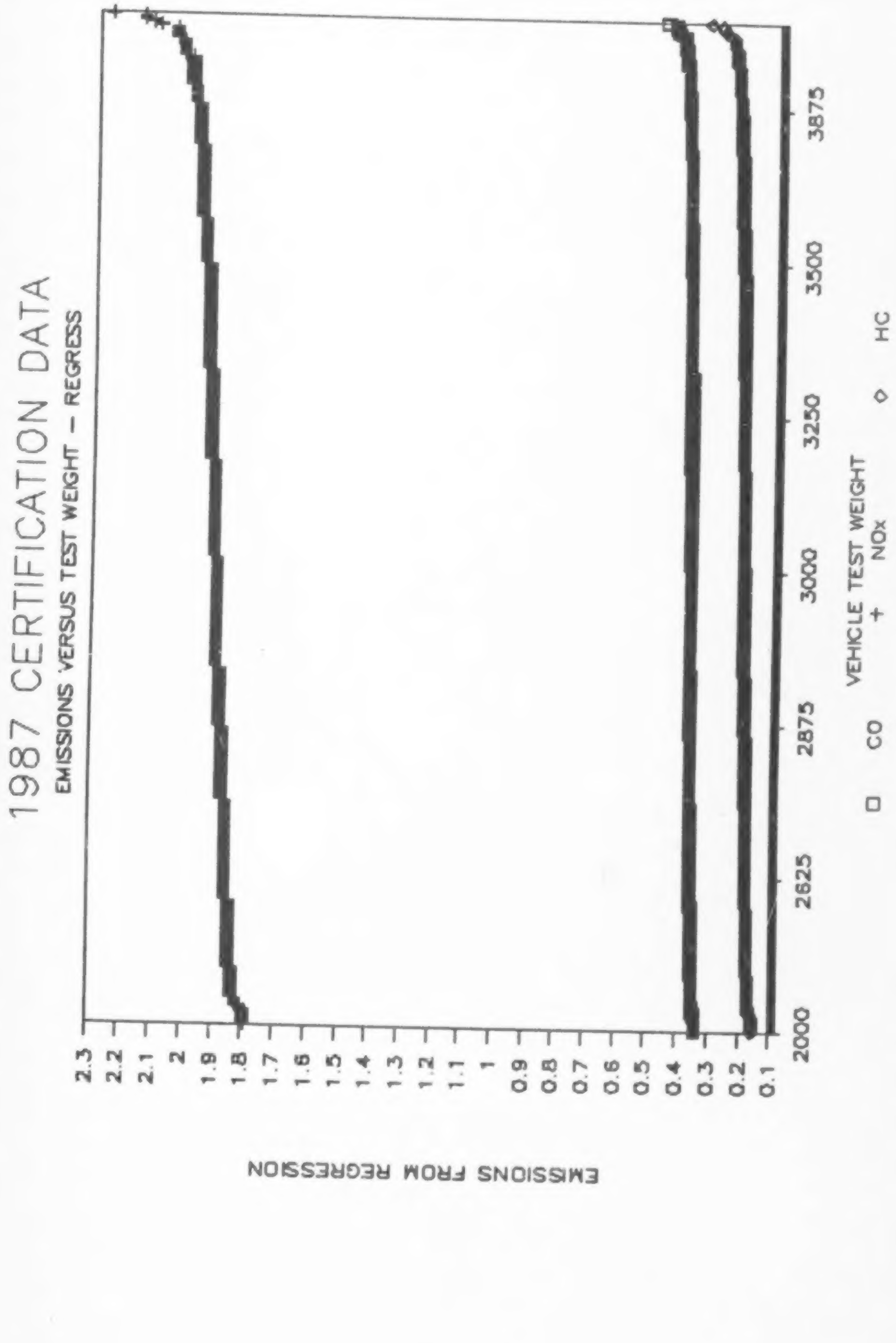


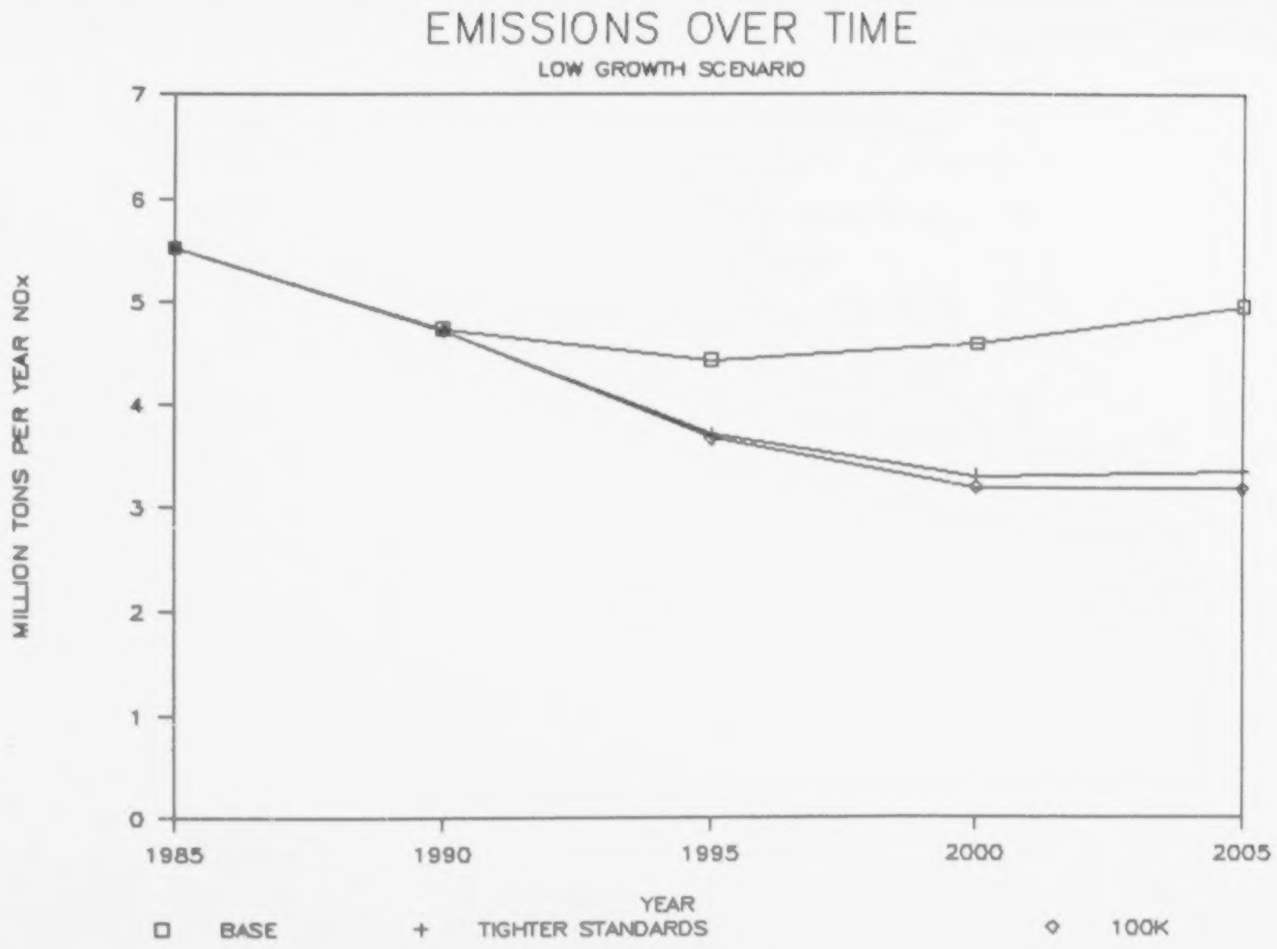
Emissions by Model Year
grams per mile
Nitrogen Oxides
4.5
4
3.5
3
2.5
2
1.5
1
0.5
1972
1975
1978
1981
1984
Model Year
□ stds
+ 50K in-use
◇ pre-68
△ 68-71

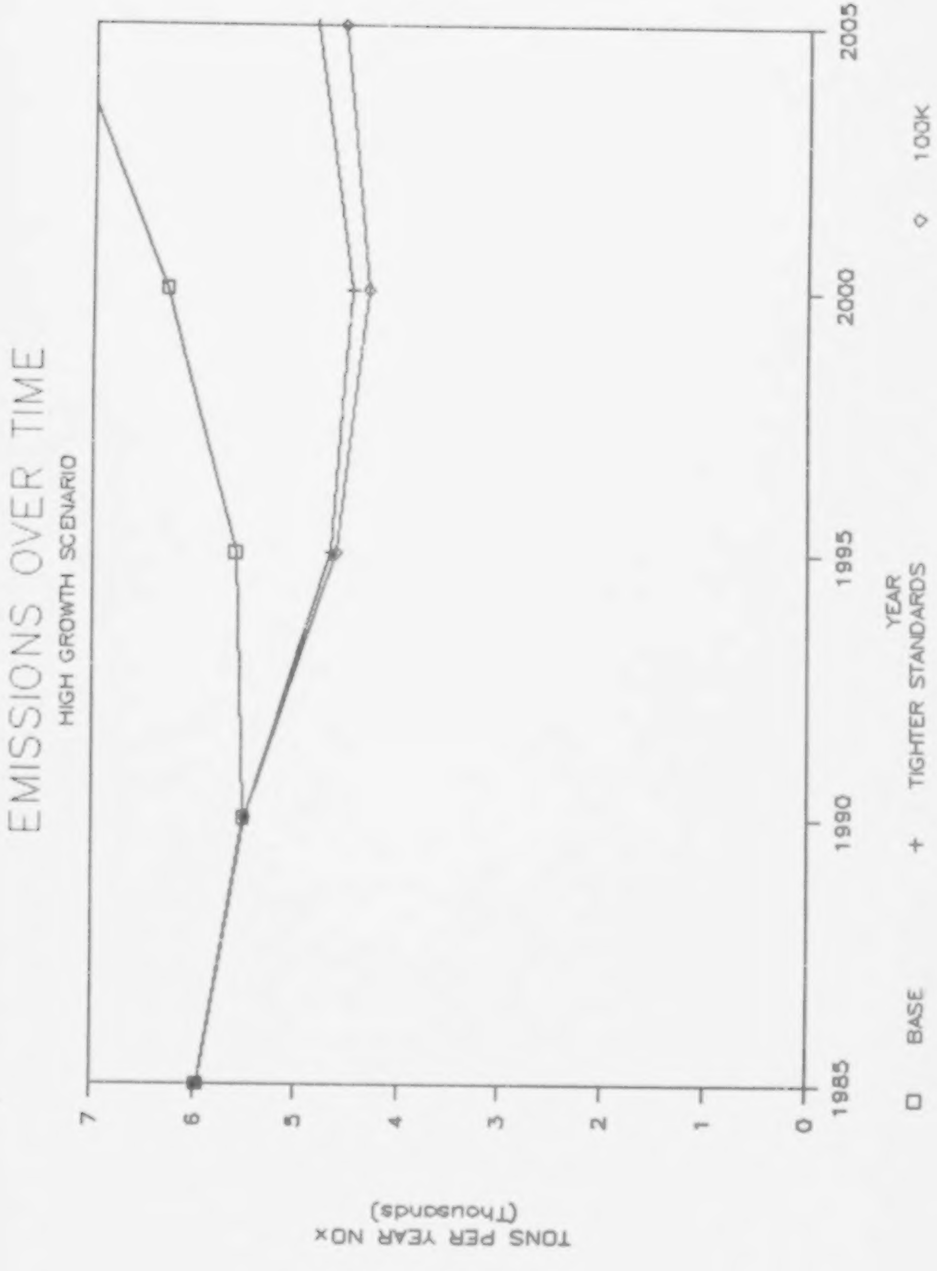

Transportation Emissions Trends
Nationwide
Normalized Emissions
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1976
1979
1982
1985
Year
] Part
+ CO
◇ NOx
△ VOC
× Lead
▽ VMT

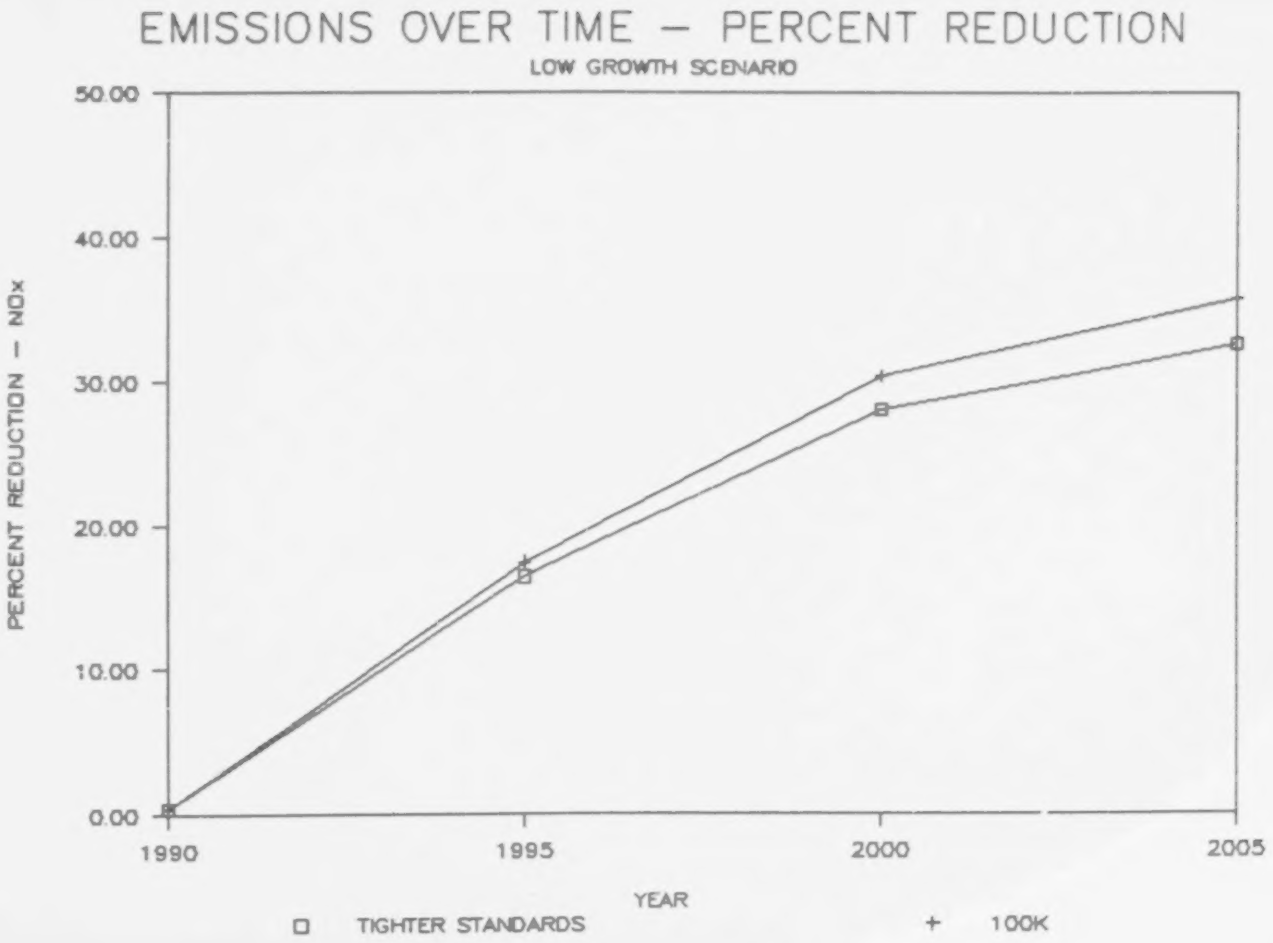

Transportation Emissions Contribution
Nationwide
Percentage
100
90
80
70
60
50
40
30
20
10
0
1976
1979
1982
1985
Year
□ Part
+ CO
◇ NOx
△ VOC
× Lead


1987 CERTIFICATION RESULTS
CO VERSUS NOx EMISSIONS
CO Emissions
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0.92
0.56
0.45
0.37
0.31
0.24
0.15
NOx Emissions
ACTUAL
+
REGRESSION


1987 CERTIFICATION DATA
EMISSIONS VERSUS TEST WEIGHT – REGRESS
EMISSIONS FROM REGRESSION
2.3
2.2
2.1
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
2000
2625
2875
3000
3250
3500
3875
VEHICLE TEST WEIGHT
□ CO
+ NOx
◇ HC

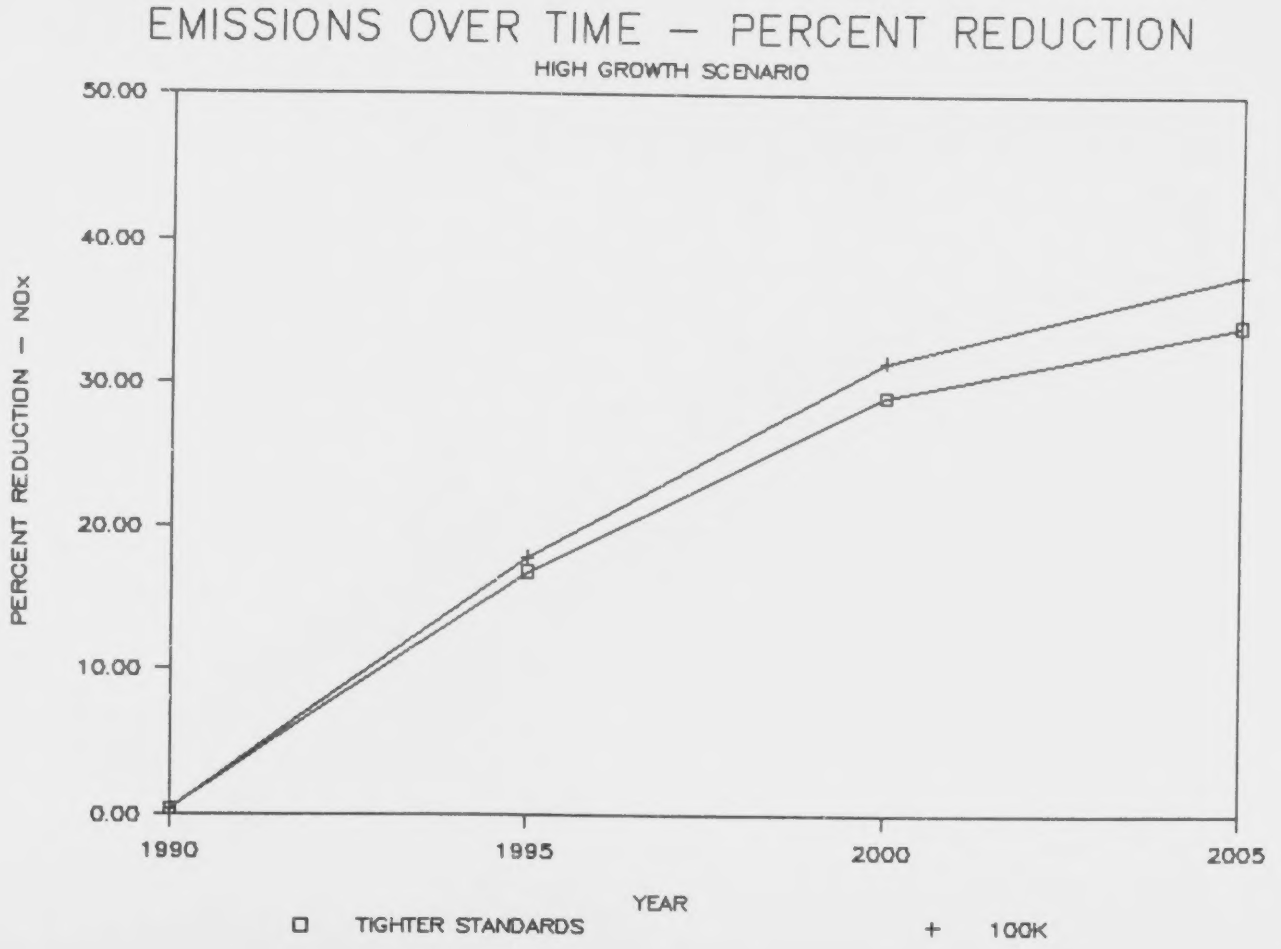

EMISSIONS OVER TIME
LOW GROWTH SCENARIO
MILLION TONS PER YEAR NOx
0
1
2
3
4
5
6
7
1985
1990
1995
2000
2005
YEAR
□ BASE
+ TIGHTER STANDARDS
◇ 100K

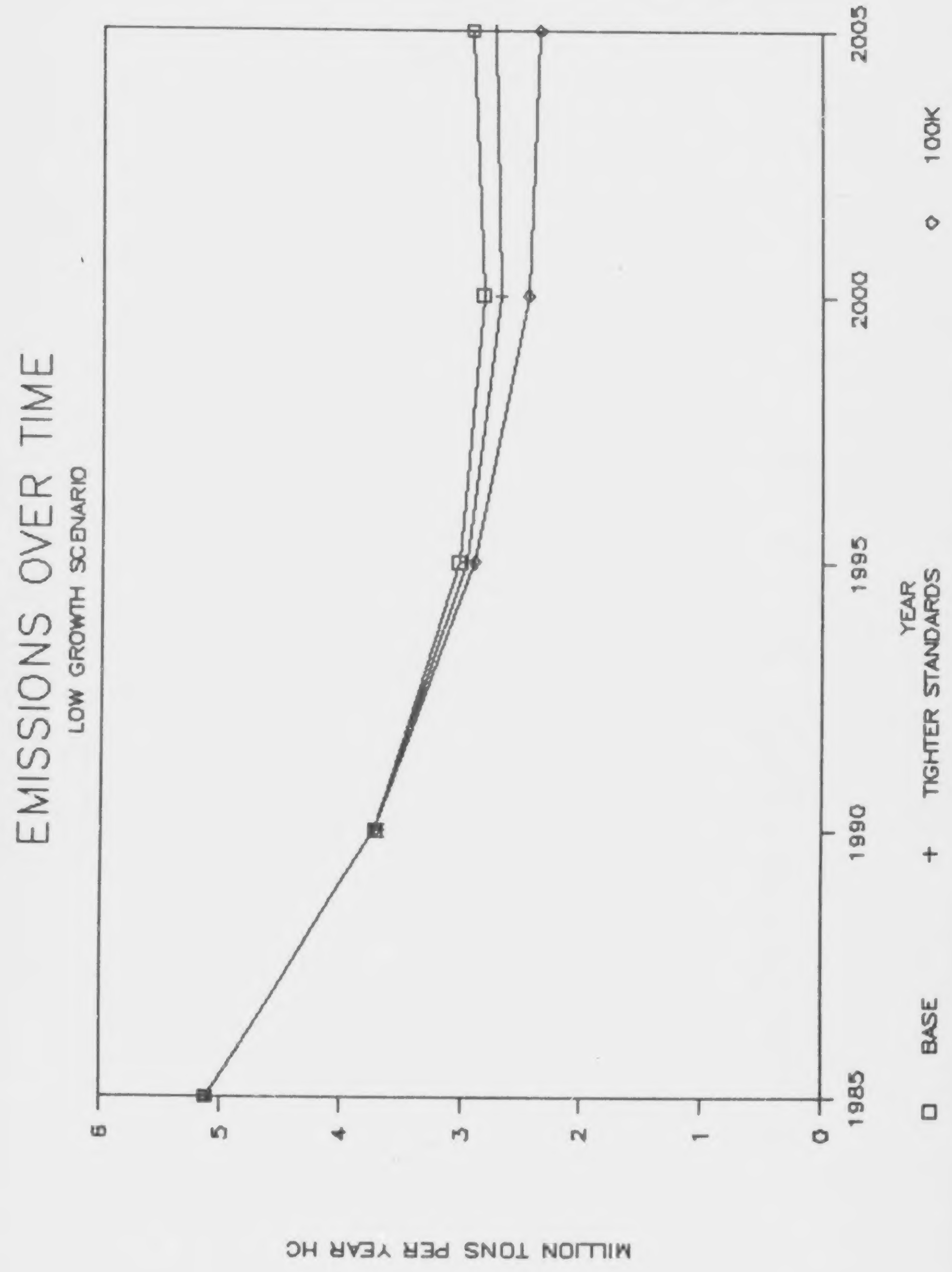

EMISSIONS OVER TIME
HIGH GROWTH SCENARIO
TONS PER YEAR NOx
(Thousands)
7
6
5
4
3
2
1
0
1985
1990
1995
2000
2005
YEAR
□ BASE
+ TIGHTER STANDARDS
◇ 100K

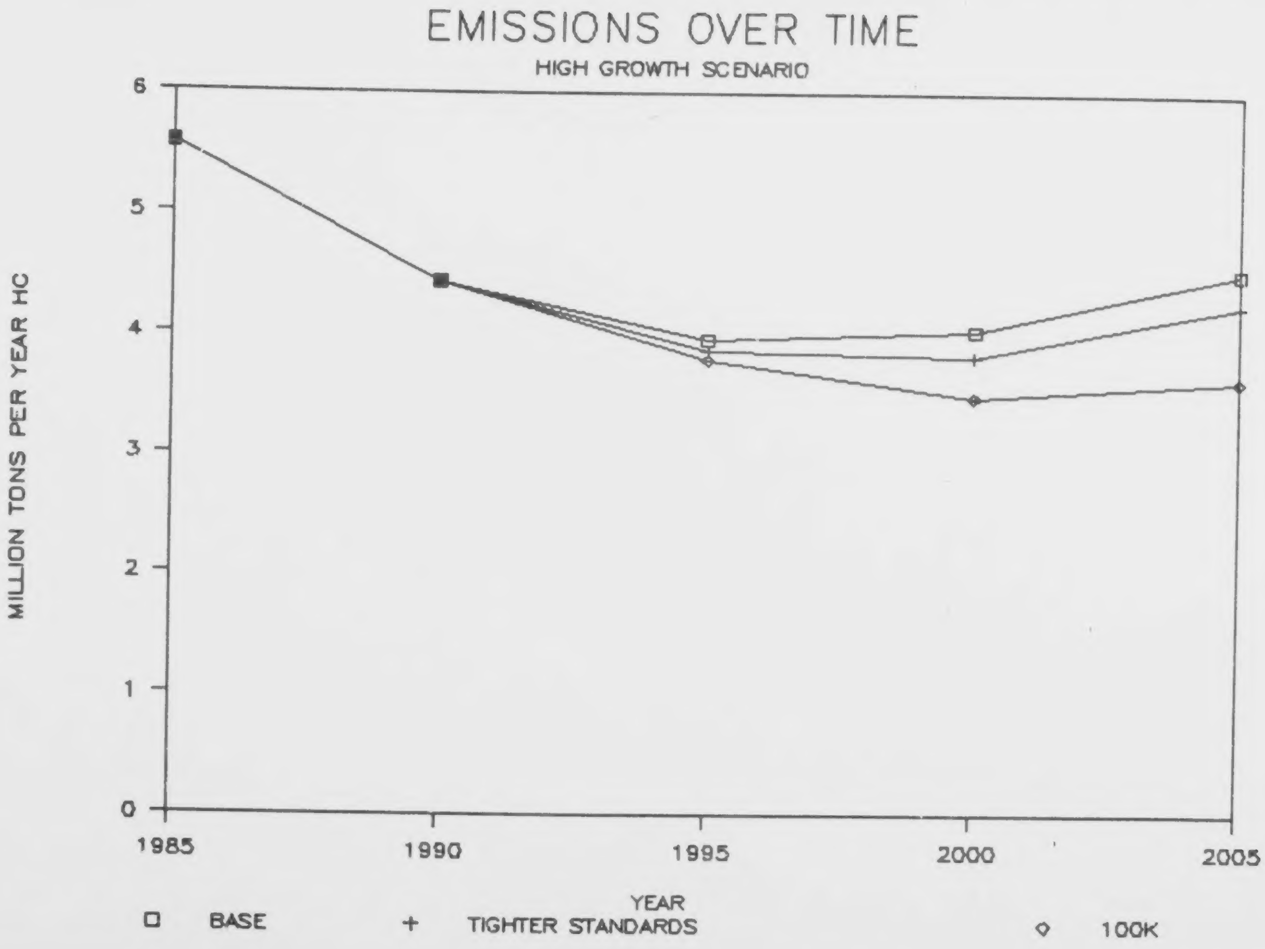


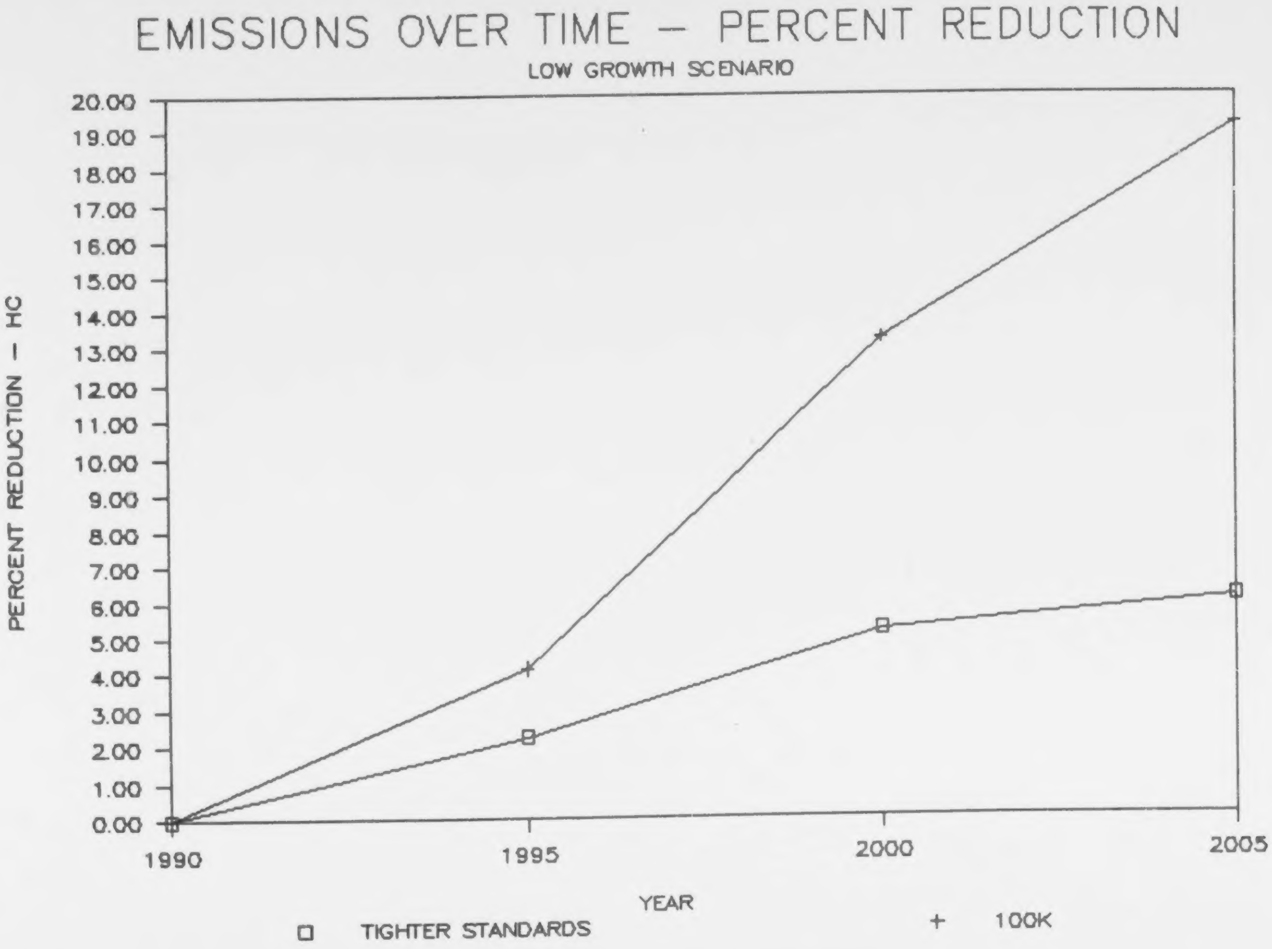
EMISSIONS OVER TIME — PERCENT REDUCTION

LOW GROWTH SCENARIO


EMISSIONS OVER TIME — PERCENT REDUCTION
HIGH GROWTH SCENARIO
PERCENT REDUCTION — NOx
50.00
40.00
30.00
20.00
10.00
0.00
1990
1995
2000
2005
YEAR
□ TIGHTER STANDARDS
+ 100K

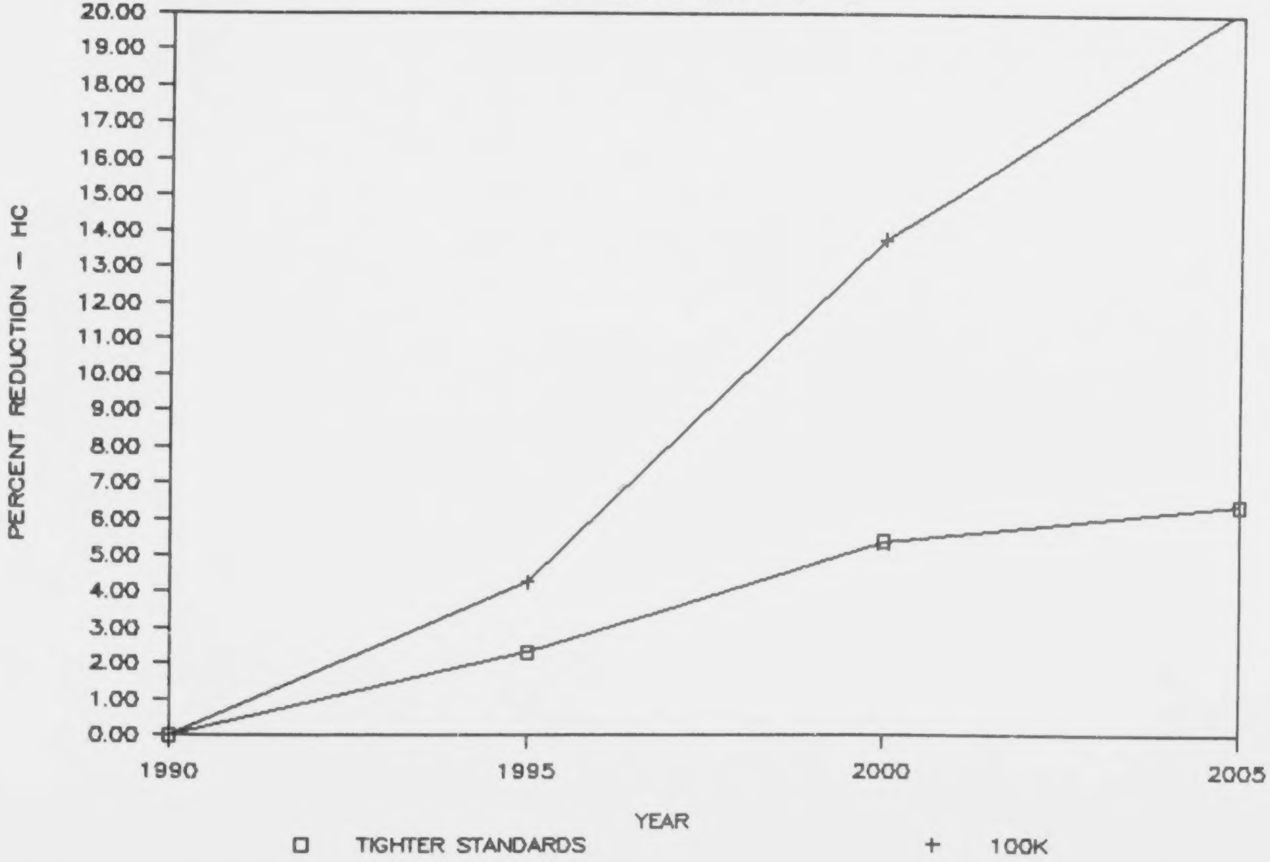

EMISSIONS OVER TIME
LOW GROWTH SCENARIO
MILLION TONS PER YEAR HC
0
1
2
3
4
5
6
1985
1990
1995
2000
2005
YEAR
□ BASE
+ TIGHTER STANDARDS
◇ 100K


EMISSIONS OVER TIME
HIGH GROWTH SCENARIO
MILLION TONS PER YEAR HC
6
5
4
3
2
1
0
1985
1990
1995
2000
2005
YEAR
□ BASE
+ TIGHTER STANDARDS
◇ 100K


EMISSIONS OVER TIME — PERCENT REDUCTION
LOW GROWTH SCENARIO
PERCENT REDUCTION — HC
20.00
19.00
18.00
17.00
16.00
15.00
14.00
13.00
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1990
1995
2000
2005
YEAR
□ TIGHTER STANDARDS
+ 100K

EMISSIONS OVER TIME — PERCENT REDUCTION

HIGH GROWTH SCENARIO



S S D A

SERVICE STATION DEALERS OF AMERICA, INC.

304 Pennsylvania Avenue S.E.
Washington DC 20003
(202) 546-6868

TESTIMONY BY

VIC RASHEED

EXECUTIVE DIRECTOR OF THE

SERVICE STATION DEALERS OF AMERICA, INC.

ON

OZONE NON-ATTAINMENT

JUNE 16, 1987

BEFORE THE

SENATE ENVIRONMENTAL PROTECTION SUBCOMMITTEE

NOTE: The attachments to this statement have been retained in committee files.

Mr. Chairman, Members of the Committee:

The Service Station Dealers of America appreciates this opportunity to testify on this legislation designed to deal with the problem of ozone non-attainment.

SSDA represents over 60,000 independent service station dealers across the country.

Today, we would like to express the feeling of deep frustration our dealers have with the EPA, and with Congress over failure to resolve the controversy over control of refueling emissions.

This issue has been debated for well over a decade, yet only now has the "paralysis through analysis" started to conclude, and a consensus view begin to emerge, that the on-board vehicle canister is the method which provides the most efficient recovery of these emissions.

The Committee bill requires that service station dealers pay the price for this indecision by EPA and Congress by requiring non-attainment areas to implement Stage II vapor recovery as a condition of receiving a five-year deadline extension.

A. Service Stations and Clean Air

The Committee must be cognizant of the fact that service station dealers are already contributing to the fight for clean air in several ways.

First, the vast majority (more than 70%) of our members have Stage I vapor recovery, a system which controls evaporative HC emissions when a service station's underground tanks are refilled by tanker trucks.

Second, in many states our members are the backbone of motor vehicle inspection and maintenance programs, which insure that motor vehicles meet emission requirements. Enhancing the inspection and maintenance programs by insuring pollution control equipment is working, and broadening the scope of these programs to include older vehicles, as well as areas other than non-attainment areas would yield more environmental benefit than requiring Stage II vapor recovery.

Third, reduction of the permissible volatility level in gasoline, be it by the Congress, EPA or by the states, will significantly impact our members in the form of increased product costs that will not be recoverable for gasoline dealers due to widespread retail competition by suppliers with their own dealers (dual-distribution).

Fourth, SSDA supports research and development of clean burning, alternative fuels such as neat methanol, while recognizing that such fuels would require changes in the existing auto fuel distribution system.

In addition to these steps, the Committee bill would require service station dealers, in certain areas, to install Stage II vapor recovery as a condition for obtaining a five-year extension of the ozone deadline. We submit that Stage II as an interim measure makes no sense.

B. Stage II As An Interim Strategy

The Committee bill has proposed an option for controlling refueling emissions that more than doubles the cost per ton of VOC emission of Stage II by requiring reduced RVP or volatility of gasoline in addition to on-board canisters and Stage II vapor recovery.

The Committee should be aware that this option was among those that the EPA requested public comment on when it published its "Evaluation of Air Pollusion Regulatory Strategies for the Gasoline Marketing Industry" in 1984.

The commentators overwhelmingly urged the Agency to reject this option, including many states that would be affected by this bill.

For example, both the New York Department of Conservation and the New Jersey Department of Environmental Protection urged the Agency to adopt on-board canisters while rejecting Stage II as an interim measure, and both state legislatures passed resolutions urging on-board while rejecting "redundant and unreasonable state implementation of Stage II."

The commentators cited several reasons for this view, that apply with equal force today as they did in 1984.

First, Stage II cannot be implemented on the scale envisioned by this bill in a timeframe that would have an effect by the 1992 extension, and in fact, would overlap with the implementation of on-board canisters.

Implementation of Stage II requires SIP revisions with opportunity for public comment on issue such as exemptions for small outlets, technical requirements, schedules, etc.

Addisionally, as the underground storage tank program has made clear, Stage II cannot be physically implemented in the contemplated timeframe.

Second, Stage II not only overlaps with both volatility controls and on-board, these other controls raise Stage II cost-effectiveness to a level of over $5,000/ton VOC reduction, well beyond any reasonable range.

Third, Stage II wold not produce any meaningful short-term reuctions in ozone levels.

For example, in the New York area in 1986, the highest recorded level was .18. The New York SIP states that Stage II wold produce a 3.3% reduction in VOC's. This reduction would reduce ozone levels by only .00198 ppm, a level well within the variability of the machine -- in other words, undetectable!

Fourth, the real world effectiveness of Stage II is only 49-69%, whereas the reduction figures being offered are based on an efficiency rating of over 90%, a level that would never be reached.

We note that the New York SIP states that "there are so many areas in which these systems can break down, that the classic enforcement methods to insure compliance would be too resource intensive." (New York SIP at A-21)

Fifth, Stage II implementation in non-attainment areas is inconsistent with the ongoing program to upgrade underground storage tanks.

Finally, many areas will come in attainment over the next 5 years without Stage II due to vehicle fleet turnover and other factors.

SSDA would like to make a more detailed statement on this issue for the record; however, in any event, Stage II as an interim measure in non-attainment areas is reduntant and unreasonable, as the costs are totally out of proportion to any benefit.

C. Impact on the Service Station Industry

At the outset, SSDA must point out that existing studies of the costs of the Stage II system are seriously flawed in several respects.

First, it has been assumed by EPA that the costs of Stage II can be passed on to consumers. This is not true. Independent service station dealers operate in a fiercely competitive retail environment. A dealer often competes with his own supplier who frequently sells at a "retail" price below, at or very near to the dealer's wholesale cost. Accordingly, it is extremely difficult for a dealer to pass on these costs.

Second, it has been assumed the length of time over which a dealer may amortize these costs of complying with the regulations is as long as thirty-five (35) years. This is not correct, as a franchise in the gasoline industry typically runs for 3 years at most, and the federal Petroleum Marketing Practices Act affords a dealer limited assurance that his franchise will be renewed at the conclusion of that term. Accordingly, turnover of the service station dealer network is high relative to other industries, and the long-term financing necessary to these costs is often not available.

Most importantly, we urge The Congress not to view the potential impact of Stage II on the service station industry in a vacuum. Service station dealers are currently being hit with a wave of environmental regulations unprecedented in our history.

In addition to possible Stage II requirements we are faced with the following costs:

-- Small Quantity Generator Hazardous Waste Regulations under RCRA. These costs include not only management in the cradle-to-grave tracking system, but will also include the costs of new hazardous waste tank stamdards and container standards.

-- Both existing regulations of used oil and those proposed under RCRA or TSCA -- We shall have to bear with these regulatory costs at the same time states or EPA would be expecting us to install Stage II.

-- Asbestos regulation made effective by OSHA this year, affects many stations as brake work is an integral part of their repair business.

-- Superfund costs are already filtering down to the dealer in the form of higher product costs.

-- State regulation such as "Superlien laws" which have made it difficult for dealers to obtain financing for tank upgrdes and would similarly affect ability to obtain financing for Stage II.

-- Worker right-to-know Regulatin by OSHA.

-- Title 3 (Community Right-to-Know) of SARA.

and last, but most importantly --

-- Regulation of Underground Storage Tanks under RCRA. Over the next ten years we will be replacing tanks and upgrading existing tanks with cathodic protection, leak detection and spill control devices.

We will also be required to maintain evidence of financial responsibility of a minimum of $1 million per facility as required by SARA although mechanisms to meet the requirement are not available.

Although these regulations will be developed and become final next year, one thing is certain: it shall be an extremely costly process for our members.

We believe that in evaluating this issue, Congress must look at the entire regulatory burden which is being placed on our industry, at the same time we would be faced with Stage II.

Service station dealers have limited resources. Tens of thousands of our members do not have a deep pocket to fall back on. The question facing you is how do we direct this industry to allocate these limited resources towards the goals of protecting human health and the environment.

SSDA submits that it makes no sense to require our industry to squander millions of dollars on Stage II that could be better spent in such areas as underground tanks, used oil, small quantity generator problems, etc.

By EPA's own estimates, we account for only 2% of the ozone problem. On the other hand, as owners and operators of hundreds of thousands of underground tanks, we are a major portion of whatever problems exist in that area.

The Small Business Administration, in a study it did on RCRA compliance costs for a service station, stated that the "overlap of Small Quantity Generator, Used Oil, and Underground Storage Tank regulations may result in compliance costs four times as great as

SQG compliance alone, and far more if UST regulations include secondary containment and forced retirement.

Previous studies and our experience with Stage II in the District of Columbia and California have shown that about 20% of the affected stations will close due to Stage II alone.

Certainly the cumulative effect of the regulations we have discussed will force some stations to close. The public should be concerned that the accumulative effect of Stage II heaped upon the other regulations will cause massive disruption of the independent gasoline dealer network, and thus remove a major competitive force from the retail marketplace, inconsistent with Congressinal intent in passing the PMPA.

D. Stage II ... A Headache for Consumers and Local Governments

The Stage II system has been a massive headache for not only for dealers, but motorists as well.

If you enjoy pushing, shoving, jerking, jamming, and twisting a gasoline nozzle into your car, you will enjoy using Stage II equipment. It has a bellows which must be compressed with considerable pressure against the fill pipe to make an airtight seal or it won't pump.

The California Air Resources Board received 2,533 written complaints, in addition to thousands of phone calls to a special toll-free number it established due to a public outcry.

Stage II managed to do some remarkable things. For example, in California a man pumped 62 gallons of gas into his Toyota. (It recirculated gasoline by ingesting gasoline instead of vapors into the second hose intended to recover vapor). Gas tanks balloned to twice their normal size. Gas has been forced into trunks and/or passenger compartments. Thousands of horror stories can be reported like this in the District of Columbia and in California.

It should also be noted that Stage II equipment does not perform well in cold weather.

For example, here in the District of Columbia, we have had instances where dealers have been forced to use hair dryers in order to get the "flexible" rubber bellows to work.

Maintenance costs of Stage II equipment can run over $3,500 per year, for a large station.

Equipment manufacturers will argue that the fourth generation equipment is easier to use. It should be noted that the first three generations of Stage II equipment were also claimed to be reliable and durable and, in fact, were "certified" as such by the California Air Resources Board. Dealers have had to put up with constantly redesigned equipment and been forced to take other expensive equipment out of service, before its useful life expired. In fact, the average California station has had to spend over $4,000 on retrofitting alone! Even so, over 20% of the calls to our Southern California affiliate are complaints about Stage II!

Enforcement would also prove to be costly and unpopular for local governments. For example, in Southern California, 44 inspectors recently had to be added to the staff of the South Coast Air Quality Management District in order to enforce unpopular Stage II regulations. Here in the District of Columbia, public dislike of the system has led to less stringent enforcement efforts. In a public survey last year, 68% of D.C. motorists said they would buy gas in Maryland or Virginia to avoid using the nozzles.

If this system is not assidously maintained, it will break down. In fact, the California inspection manual for Stage II runs over 120 pages! Neither California nor D.C., the only areas using nozzles, can reach the Dec. 31 ozone attainment deadline.

In short, Stage II is anything but proven, reliable techology; in fact, it is a "Star Wars" approach to vapor recovery. Much simpler, more effective technology is available today:

The on-board canister.

We urge The Congress to take the steps necessary to insure that no more dealers become Stage II guinea pigs.

DIRECT REPLY TO:
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Washington, D.C. 20002 Tel. (202) 543 1440

STATEMENT ON BEHALF OF THE AUTOMOTIVE SERVICE ASSOCIATION, INC.

BEFORE THE
U.S. SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

BY
DONALD A. RANDALL, WASHINGTON ATTORNEY

June 16, 1987

Mr. Chairman and Members of the Committee, we appreciate the opportunity to testify about proposed amendments to the Clean Air Act.

Automotive Service Association is the nation's oldest and largest trade association representing over 10,000 independent automotive repair shop owners throughout the country. We are considered by many in the auto industry to be the lead spokesman for the 230,000 independent repair establishments in the United States.

The auto repair and service industry's annual sales are estimated to be in excess of $134 billion excluding gas and oil.[1] The franchised new car dealers perform only about 24% of these repairs and services. The remainder is divided among the independents, the mass merchandisers and specialty shops.

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[1] National Auto Aftermarket Audit Co.

This extensive industry is served by a complex infrastructure of auto parts manufacturers and distributors. The vehicle manufacturers provide comparatively few parts and materials used in this $134 billion industry. The vast majority of all parts, including those designated as "original equipment" or "O.E." are designed and manufactured by independent companies -- not by the vehicle manufacturers. The franchised new car dealers primarily use the "O.E." parts distributed by the auto manufacturers, but many of these are manufactured by independent auto parts makers. However, the 230,000 repair establishments use mostly other than "O.E." parts.

The automotive aftermarket, meaning sales after the original vehicle sale to the first purchaser, is highly competitive. Aftermarket manufacturers are not only competitive in price, they are competitive in innovation and product quality and in level of service to their distributors and to the final users -- the repair shops.

New vehicle purchasers have traditionally sought service and repairs from new car dealers only during the effective period of their voluntary competitive warranty. After 12 or 24 months, owners generally seek service and repairs outside the franchised car dealerships.

In large part, this owner-preference for service from the independent segment is due to price, quality of service and convenience.

Our members' concerns about proposals in S. 300 and S. 321 relate to the very real threat to competition posed by the sections that would extend the mandatory Federal emission control warranties to 10 years or 100,000 miles.

Current law provides for a mandatory warranty for 5 years or 50,000 miles and we already know that this provision is artficially diverting business from our members' shops into the car dealerships.

Many Members of Congress have been receiving letters from their constituents about this subject.

If Congress should unwisely extend this already anti-competitive warranty to 10 years or 100,000 miles, we believe it would have a devastating effect and would further dislocate a significant part of the currently competitive service industry.

The Clean Air Act language now restricts vehicle owners' options for repairs under these warranties (Sections 207(a) and 207(b)), to **only** the new vehicle manufacturers' dealers. Currently this anti-competitive restriction applies for 5 years or 50,000 miles.

This warranty, mandated by the Federal Government, is unique. No other product sold in the United States has such a requirement which ties the purchaser of the product to the manufacturer and its franchised distributors.

The mandatory Federal emission control warranties create a virtual monopoly under the hood of millions of motor vehicles sold annually.

Although the monopoly applies to only emission control items or others that relate to or affect emissions, these warranties -- and the public's perception of their coverage -- channel millions of owners back into the new car dealerships for anticipated free warranty repairs. While these owners are captive of the new car dealers, they are sold other maintenance and repairs -- not covered by the warranties.

The combination sale of both warranty and non-warranty repairs will eventually cause a market dislocation for tens of thousands of small independent repair shops throughout the Nation.

While we agree with the worthy objectives of the Clean Air Act, we strongly object to the establishment of an unregulated monopoly in the service and repair of our vehicle emission control systems. Moreover, we feel that this anti-competitive system generates sales opportunities the dealers would not otherwise have afforded to them in an open, competitive marketplace. By operation of federal law, it denies us due process and equal protection of the laws.

The objectives of the Environmental Protection Agency (EPA), the environmentalists and Congress to compel the vehicle manufacturers to build durability into their emission control systems -- and -- to require vehicle owners to keep their vehicles in compliance, can both be met by simply requiring vehicle owners to have them inspected for compliance annually. Thereafter, if the vehicles are found **not** to be in compliance, owners can have them corrected or repaired at the repair shops of their choice and competition can be the best discipline -- not a mandated monopoly that discourages innovation and price competition or quality of service.

If Congress wishes to assure that vehicle owners will keep their vehicles in compliance, a system of emission control service contracts can be required. This approach will insure competition both at the offering level (manufacturers and others) and at the service or repair levels. Thus, product innovation, quality and price competition would all be enhanced.

Furthermore, vehicle inspection and a free market approach will afford EPA, under existing law, sufficient data to enforce mandatory recalls where EPA finds a significant number of vehicles to be **not** in compliance with federal emission standards.

Both S. 300 and S. 321 propose to extend the time and scope of the anti-competitive emission control monopoly warranties. There are other ways to achieve the clean air objectives and not impair wholesome, free market competition.

Consumers are confused by the various warranties. Dealers and independent repair shop owners are also confused and quite uncertain about what is and what is not a "covered repair" under these various warranties.

The vehicle manufacturers offer voluntary new car warranties which vary from 12 months on ignition, electrical, and rubber parts, to 24 months on a limited number of wearable parts, i.e., suspension and steering parts. Recently new voluntary competitive limited warranties have been extended by General Motors and Ford to 6 years or 60,000 miles and by Chrysler to 7 years or 70,000 miles. These extended warranties are very limited. They apply only to low-wear drive train componenets and parts. Additionally, the manufacturers offer extended paint and corrosion warranties.

All of these voluntary warranties are written but they are difficult to read and understand.

Compounding this consumer confusion problem, are the car manufacturer- and dealer-offered competitive extended service contracts. These provide for limited specific service and repairs beyond the traditional 24 month or 24,000 mile period.

Further complicating this confusion are the federally required 207(a) and (b) emission control warranties.

Additionally, the State of California's waiver permits that state, with over 10% of the Nation's vehicle population, to require warranties that vary from those required by the Environmental Protection Agency (EPA).

In essence, few dealers or repair shop operators understand the terms and conditions of the Federal mandatory warranties. Even fewer vehicle owners understand them.

We believe that most vehicle owners misperceive what is covered and what is not covered either under the competitive voluntary warranties or the mandatory Federal emission warranties.

Furthermore, we are convinced that neither Congress nor EPA has adequate facts or data to justify making such a drastic and major public policy change in our free enterprise system.

To create an unregulated monopoly system of auto repairs affecting tens of millions of motorists, will be to inflict enormous unnecessary costs upon the American public. Both the FTC and Department of Justice have previously agreed with this position.

Not only will service and repair prices be set higher by such a monopoly, the serious anti-competitive effects will stiffle innovative competition, breed mediocre quality parts and service, and force a concentration of automotive service into larger and larger dealerships.

Consumer dissatisfaction with the quality of dealerships' service under warranties has been excruciatingly documented by the U.S. Senate Antitrust Subcommittee and by the Federal Trade Commission during extensive investigations and hearings in the 1970s.

Recent data from the Better Business Bureau (BBB) still shows that consumer complaints about unsatisfactory dealer service ranks first in all auto repair compliants.

Before Congress acts to extend this very anti-competitive provision of Section 207 of the Clean Air Act, we respectfully suggest that detailed data and facts must be assembled to support such a proposal. The burden of justifying proposed legislation should rest upon the proponents of that legislation. As a minimum, the following questions must be answered!

1. What is the basis for extending the mandatory warranty to 10 years or 100,000 miles?

2. How many of the 1983 cars or later model vehicles have been found to be out of compliance or non-conforming to the Federal emission standards?

3. Of the cars identified as non-conforming, how many have been remedied under the mandatory warranty free, or at some diagnostic cost?

4. Of those vehicles remedied at no cost or only diagnostic costs, how many of those owners purchased other parts and services from the dealers while their vehicles underwent warranty repairs?

5. What was the total value of those purchases identified in question #4 above?

6. How many vehicle owners, whose vehicles failed state emission inspections, paid to have their vehicles restored to the required emission level?

7. How many complaints have EPA and the state agencies received about poor or unsatisfactory warranty service or repairs?

8. What is the relative cost to the public for imposing these 5-year/50,000-mile warranties compared to the cost of Inspection and Maintenance Programs in the non-attainment areas?

9. What will be the relative costs and market dislocations for imposing the 10-year/100,000-mile mandatory warranty?

10. How much cost is added to the purchase price of new cars because of the 5-year/50,000-mile mandatory warranty?

11. What will the added cost be for the 10-year/100,000 mile mandatory warranty?

12. Is the cost for maintenance under the mandatory warranty program, which ties vehicle owners to the manufacturers new car dealers (a monopoly), more or less expensive than a program which would leave vehicle owners free to shop in a competitive marketplace for needed repairs?

13. Are vehicle owners inconvenienced by being limited only to obtaining warranty repairs from franchised new car dealers?

14. To what extent are motorists confusing the coverages under these 5-year/50,000-mile mandatory warranty and the manufacturers voluntary warranties for 6 years/60,000 or 7 years/70,000 miles?

15. Do motorists, who may be confused by these various warranties go into dealerships, who then get first crack at the billable repair sales? How many are confused?

16. Is the current mandatory warranty effective?

We are firmly convinced that the current situation calls for exactly the opposite approach. This Committee should be seeking a means for promoting competition in price and quality of parts and service. The present 5-year/50,000-mile provision should be modified.

About 50 million or 30 percent of our current light vehicle population is now subject to state emission inspection and maintenance programs (I&M). Under EPA guidelines, about 25 percent of those 50 million vehicles will fail those inspections. That's 12,500,000 vehicles annually that will, in all probability, be directed by EPA and state officials to go to the new car dealers for repairs.

New I&M programs will be coming on-stream over the next few years. Millions of more owners will be advised by EPA and state officials to return to the dealerships.

This artificially created market will afford dealers sales opportunities, not just for warranty work, but customer-paid repairs for non-warranty work. The damage to the competitive aftermarket will be significant.

The appropriate action for Congress to take would be to first adopt provisions similar to those in Mr. Dannemeyer's bill, H.R. 1239, which would amend the Clean Air Act and reduce the mandatory requirements to two years and 24,000 miles. It would also clarify the anti-tampering provisions, which is a badly needed amendment.

If a compromise provision is needed to meet the demand for durability for ten years or 100,000 miles, then I suggest Congress do the following:

A. Amend the Act to require the new vehicle buyers to purchase an emission control system service contract to provide for maintenance and repairs to the system beginning at two years or 24,000 miles and covering the emission system out to ten years or 100,000 miles.

B. Amend the Act to require vehicle manufacturers to offer to sell to new vehicle buyers a service contract on the emission control system running from 24 months or 24,000 miles out to ten years or 100,000 miles.

(Others, including insurance companies, might also offer to sell new car buyers a competitive service contract.)

C. Amend the Act to require EPA to promulgate regulations and rules that would promote competition among all the automotive service industry in performing maintenance and service under these emission control service contracts. (This would promote competition between dealers and independent service shops.) EPA must establish rules for the content and format of these service contracts. The contracts must be clearly readable and understandable by the vehicle owners.

Those who offer to sell these service contracts must not be permitted to create undue administrative burdens and procedures for motorists to secure service under the contracts.

The terms and conditions for repair shops to qualify to perform repairs and service under these contracts must not be unduly burdensome or restrictive. The system of administration must maximize the number of establishments that are encouraged to compete.

There must be a means for EPA to discipline companies who fail to honor the approved terms and conditions of their service contracts.

This approach would have the dual benefits of stimulating competition among the vehicle manufacturers, insurance companies and others who would offer to sell these service contracts and -- competition between dealers and other service establishments in performing maintenance and repairs under these mandatory emission control system service contracts.

Competition rather than a monopoly would better serve the millions of new vehicle purchasers and preserve competition in the automotive service industry. Total cost to the motoring public would be far less under a competitive system.

TESTIMONY BEFORE THE SENATE SUBCOMMITTEE ON SUPERFUND AND ENVIRONMENT OVERSIGHT

"CLEAN AIR STANDARDS ATTAINMENT ACT OF 1987"

BY

DONALD A. DEIESO

ASSISTANT COMMISSIONER

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

GOOD MORNING. MY NAME IS DONALD DEIESO, ASSISTANT COMMISSIONER, ENVIRONMENTAL MANAGEMENT AND CONTROL FOR THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION.

NEW JERSEY AS WELL AS OTHERS HAVE PROVIDED SUPPORT TO THE NATIONAL GOVERNORS ASSOCIATION (NGA) POSITION WITH REGARD TO OZONE NON-ATTAINMENT. I AM THEREFORE, PLEASED THAT SENATOR MITCHELL HAS DRAWN UPON MANY OF THE NGA CONCEPTS AS WELL AS THOSE OF STAPPA, TO DEVELOP AMENDMENTS TO THE CLEAN AIR ACT.

WITH EVER INCREASING SPEED, NEW ENVIRONMENTAL ISSUES ARE BEING THRUST UPON STATES AND THE NATION. MOST OF THESE ISSUES ARE IN RESPONSE TO RAPIDLY DEVELOPING NEW TECHNOLOGIES, OFTEN REQUIRING NOVEL NEW CONCEPTS IN EMISSIONS CONTROL. NOTHING DEFLATES THE EGO MORE, THEREFORE THAN BECOMING BEFORE CONGRESS TO CONFESS, QUITE HONESTLY, THAT WE HAVE TO PATCH UP AN OLD PROGRAM AND THAT WE; IN GOVERNMENT, --BOTH FEDERAL AND STATE-- HAVE NOT SUCCEEDED IN PROTECTING THE PUBLIC HEALTH FROM AN AIR POLLUTANT WHICH HAD ITS ORIGINS IN THE MID 1950'S. THE OZONE DILEMA, AS WE HAVE CALLED IT, IS BEFORE CONGRESS AGAIN AS IT WAS IN 1982, 1978, 1975 AND 1970. YET NOW WITH SUDDEN FURY, THE STATES ARE BESEIGED BY LAWSUITS, EPA MAKEING UP FOR LOST TIME, IS ABOUT TO IMPOSE SANCTIONS IN MANY AREAS OF THE NATION AND CONGRESS AFTER MANY YEARS OF DELAY, IS PREPARING MAJOR CHANGES TO THE CLEAN AIR ACT.

WE MUST BEGIN BY ASKING WHY WE HAVE FAILED AFTER TRYING FOR SO LONG? DOES IT MEAN THAT THE STRATEGIES THAT WE HAVE PUT IN PLACE ARE AS EFFECTIVE AS WE THOUGHT? OR ARE WE MISSING A VITAL PART OF THE COMPLEX "SMOG" EQUATION WHICH SUGGESTS THESE STRATEGIES HAVE FAILED BECAUSE THEY ARE SCIENTIFICALLY FLAWED?

IN OTHER WORDS, ARE WE GOING ABOUT IT IN THE RIGHT WAY? THESE ARE THE QUESTIONS WHICH CONFRONT US AGAIN AS WE FACE THE PROSPECT OF INCREASINGLY MORE COMPLEX, UNPOPULAR AND MORE COSTLY CONTROL MEASURES.

THE BILL BEFORE US TODAY IS A STRONG BILL. IT ASSUMES THE FORMER - THE STRATIGIES THAT WE HAVE SO FAR PUT IN PLACE ARE NOT ENOUGH. SUCH A STRONG BILL IS NEEDED IF GOVERNMENT AT ALL LEVELS (FEDERAL, STATE AND LOCAL) ARE TO PERSERVERE AND WORK TOGETHER TO ATTAIN THE STANDARD.

THE MAJOR ISSUES AS WE SEE THEM ARE: 1. THE ATTAINMENT DEADLINES, 2. THE TRANSPORT ISSUE, 3. SANCTIONS, 4. THE NATIONAL VS STATE CONTROL MIX, AND 5. AMBIENT AIR QUALITY STANDARDS. BRIEFLY LET'S LOOK AT EACH.

AS ANY MANAGER KNOWS, DEADLINES ARE MOST IMPORTANT TO GET THINGS DONE. HOWEVER, WITHOUT THE ADEQUATE TOOLS, DEADLINES OFTEN LEAD TO FRUSTRATION. THE STRENGTH OF THIS BILL AS I SEE IT, IS THE INCLUSION OF SPECIFIC CONTROL MEASURES WHICH WOULD BE REQUIRED UNDER THE ACT. THE PROPOSED AMENDMENTS SIGNIFICANTLY

MOVES THE CLEAN AIR ACT FROM THE EXISTING AIR QUALITY-BASED APPROACH TOWARD A CONTROL-BASED APPROACH WHILE RETAINING SOME TIMETABLE FLEXIBILITY FOR THE MOST SEVERELY POLLUTED AREAS.

WE IN NEW JERSEY, AS WELL AS MANY OTHER STATES, ARE IN THE LAST YEAR OF THE EXISTING EXTENSION AS ALLOWED UNDER THE CURRENT CLEAN AIR ACT. CONGRESS MUST ASSURE THAT STATES WITH APPROVED EPA STATE IMPLEMENTATION PLANS (SIP'S) MUST MAINTAIN THEIR MOMENTUM BY FULFILLING THEIR EXISTING SIPS REQUIREMENTS WHILE UPDATING THEIR SIP'S WITH RESPECT TO THE NEW REQUIREMENTS AND DEADLINES. THE PROPOSED TWO TIER SYSTEM (FIVE OR TEN YEAR EXTENSION) SEEMS CONSISTENT WITH THIS APPROACH. THE DECISION OF A STATE TO ELECT EITHER TIER 1 OR TIER 2 MUST BE MADE WITH AN UNDERSTANDING OF ATTAINING THE STANDARD AS QUICKLY AS POSSIBLE REGARDLESS OF THE DEADLINE. I BELIEVE THE BILL ACCOMPLISHES THIS PURPOSE. ON THE SURFACE IT WOULD SEEM THAT STATES WOULD TRY TO AVOID THE TOUGH MEASURES IN TIER 2 BY OPTING TO TIER 1. THUS THE REQUIREMENT THAT AREAS EXCEEDING THE OZONE STANDARD BY GREATER THAN 50% SEEMS JUSTIFIED. MOREOVER, THE RISK OF SANCTIONS, WHICH I WILL ADDRESS IN A MOMENT, ALSO ACTS AS A BUTTRESS AGAINST STATES OPTING

FOR TIER 1. WE BELIEVE HOWEVER, THERE MAY BE SEVERAL AREAS IN THE NATION (THE NJ/NY METROPOLITAN AREA BEING ONE) THAT MAY NOT BE ABLE TO ATTAIN THE STANDARD EVEN AFTER 10 YEARS. SOME ONGOING PROVISION SHOULD BE ALLOWED FOR THESE REGIONS, SO LONG AS THEY CONTINUE TO PURSUE IN A VIGOROUS WAY TIGHTER CONTROL MEASURES.

THE ISSUE OF TRANSPORT CONFRONTS NEW JERSEY AS OTHER STATES, ESPECIALLY IN THE NORTHEAST. THE AMENDMENTS WOULD AUTHORIZE THE FORMATION OF A COMMISSION WITH, SEEMLY BROAD POWERS TO OVERSEE A MULTI-STATE COMPLIANCE PLAN. IN THE NORTHEAST MEMBER STATES WOULD INCLUDE STATE AND LOCAL JURISDICTIONS FROM VIRGINIA TO MAINE ALONG WITH REPRESENTATION FROM THREE EPA REGIONS. THE BROAD AUTHORITY OF THE COMMISSION WOULD INCLUDE THE POWER TO REQUIRE CONTROL MEASURES IN AREA BY MAJORITY VOTE. WOULD SUCH AN AD HOC SYSTEM WORK? OR SHOULD THE COMMISSION ONLY BE CHARGED WITH THE RESPONSIBILITY OF THE PLANNING ELEMENTS OF THE INDIVIDUAL STATE SIP'S - THAT IS REQUIRING THE NECESSARY EMISSION REDUCTIONS REQUIRED IN EACH AREA - AND LEAVE THE STATES SOME FLEXIBILITY TO COME UP WITH THE CORRECT CONTROL STRATEGY MIX. THIS LATTER SUGGESTION CAN ONLY WORK IF EPA

DOES ITS PART AND ACTS WITH STRONG OVERSIGHT IN APPROVAL OF SIPS AND FORCES COMPLIANCE WITH THOSE SIPS. THUS THE QUESTION IS, CAN A COMMISSION SUCCEED WHERE THE STATES UNDER PAST EPA OVERSIGHT HAVE FAILED?

SANCTIONS ARE ONE SUCH TOOL--A LAST RESULT TOOL--BUT APPARENTLY ONE THAT IS NEEDED TO GET THE JOB DONE AND IN THE MOST RECALCITRANT AREAS. I SAY RECALCITRANT BECAUSE SANCTIONS ARE A FORM OF PUNISHMENT. THUS, STATES WHICH HAVE WORKED HARD TO MEET THE STANDARD BUT CANNOT BECAUSE EMISSIONS FROM UPWIND AREAS CONTINUE TO CAUSE AIR QUALITY VIOLATIONS IN DOWN WIND AREAS SHOULD NOT BE SANCTIONED. ON THE OTHER HAND, SANCTIONS MUST REMAIN A DETERRANT FOR CONTINUING EMISSION CONTROL PROGRESS. STATES WHICH ELECT TIER 1 WOULD AUTOMATICALLY RECEIVE SANCTIONS IF THEY FAIL TO MEET THE 5 YEAR EXTENSION. WHY NOT HOLD OUT SOME RELIEF FOR THEM? A BETTER WAY WOULD BE TO IMPOSE SANCTIONS ONLY UNTIL THOSE JURISDICTIONS COMMIT TO THE REQUIREMENTS IN THE SECOND TIER. THE DETERRANT EFFECT THUS REMAINS AND HAS THE EFFECT OF ACCELERATING REGULATORY ACTIONS NOT PRECLUDING THEM. WE AGREE WITH THE CONCEPT OF REDUCING THE DEFINITION OF MAJOR SOURCES FROM 100 TONS TO 25 TONS PER YEAR. YET WE FORESEE

THIS DEFINITION AS CAUSING A MAJOR ECONOMIC DISLOCATION IN SANCTIONED AREAS. THE 25 TONS THRESHHOLD COULD INCLUDE UP TO 10 TIMES MORE SOURCES THAN THE 100 TONS THRESHHOLD. MEDIUM TO RELATIVELY SMALL SIZE BUSINESSES NEEDING TO EXPAND TO SURVIVE WOULD NOW BE CAUGHT IN THE WEB OF UNCERTAINTY AS TO THEIR FUTURE. AT THIS TIME WE ARE UNCERTAIN AS TO WHAT IS THE OPTIMUM THRESHHOLD CUT OFF SIZE FOR SANCTIONS BUT WE WOULD LIKE TO WORK WITH CONGRESS TO SEEK A POSITIVE SOLUTION TO THIS PROBLEM. THE BAND ON SEWER HOOK UPS IS ALSO A NOVEL ELEMENT IN THESE AMENDMENTS. PRESUMABELY CONTINUED CONSTRUCTION OF WASTE WATER TREATMENT PLANTS WOULD PROCEED BUT A CONNECTION BAN WOULD APPLY. MANY STATES SUCH AS NEW JERSEY USE SUCH HOOKUP BANS AS A DETERRENT TO DISCOURAGE OVER-CAPACITY. OUR EXPERIENCE INDICATES THAT STRONG STATE ENFORCEMENT ACTION IS NEEDED TO ENFORCE THIS TYPE OF BAN. HOWEVER, THE PROPOSAL APPEARS WORKABLE.

CONTROL MEASURES MUST HAVE A STRONG FEDERAL AND STATE BALANCE. IT SEEMS TO ME THIS BALANCE HAS BEEN TIPPED TO MORE ONEROUS STATE MEASURES (EXCEPT FOR MOTOR VEHICLES) AND SOMEWHAT LESS FEDERAL. WE BELIEVE A STRONG NATIONAL PROGRAM IS ESSENTIAL FOR ALL CONTROL MEASURES WHICH REQUIRE CONSUMER PRODUCT REFORMULATION.

MEASURES CONTROLLING SOLVENT BASED CONSUMER PRODUCTS CANNOT BE DEALT WITH ON A PIECEMEAL STATE-BY-STATE LEVEL. SIMILAR TO THE AUTOMOBILE, A STRONG STATEMENT IS NEEDED THAT PRODUCT REFORMULATION MUST BE CONTROLLED ON A NATIONAL LEVEL.

FINALLY, IN REGARD TO THE TIER 2 CONTROL MEASURES, WE MUST BE COGNIZANT OF SOCIETAL COSTS. WE MUST FINE TUNE THEM SO THAT THE PROGRAM AS A WHOLE WILL NOT CAUSE OVERKILL. A STATE SHOULD BE ABLE TO PICK AND CHOSE AMONG THEM THE MOST DIFFICULT MEASURES JUST SO LONG AS THE REQUIRED EMISSION REDUCTION IS BOTH HONESTLY AND VERIFIABLY ACHIEVED. FOR EXAMPLE, EMISSION FEES AND EXCESS EMISSION FEES ON SOURCES THAT ALREADY COMPLY WITH THE STATE-OF-THE-ART TECHNOLOGY MAY, IN EFFECT, CAUSE IRREPARABLE HARM TO THOSE FACILITIES THAT ARE ALREADY ACHIEVING THE BEST EMISSION LEVELS THAT TECHNOLOGY HAS ADVANCED.

THERE IS A PLACE FOR EMISSION FEES. BUT SUCH FEES MUST BE TAILORED TO BRING ABOUT THE DESIRED RESULTS. THERE IS ALSO MUCH CONCERN EXPRESSED ABOUT THE FIXED 8% ANNUAL SOURCE REDUCTIONS. YET IT SEEMS THE AMENDMENTS ALLOW FOR PROPORTIONAL DECREASES RELATIVE TO THE REMAINING EMISSION LEVELS NEEDED TO MEET

THE STANDARD. THIS SEEMS REASONABLE. THEREFORE, IF SUCH IS THE CASE, WHY SHOULD A FIXED PERCENTAGE EVEN BE REQUIRED.

I WOULD THINK YOU WOULD ALL AGREE THAT LEGISLATION REQUIRING SPECIFIC AIR QUALITY HEALTH STANDARDS MAY NOT REFLECT SOUND SCIENTIFIC POLICY. YET, I CAN UNDERSTAND WHY CONGRESS BELIEVES IT MUST ADDRESS REVISIONS TO THE AIR QUALITY STANDARDS. EPA HAS INTERPRETTED THE STANDARDS NARROWLY AND HAS REFUSED TO RECOGNIZE NEW AND EMERGING CRITERIA POLLUTANTS. INSTEAD, THEREFORE, I WOULD URGE CONGRESS TO CONSIDER A "REBUTTABLE PRESUMPTION" CONCEPT REQUIRING EPA TO AMEND THE STANDARDS WITHIN A FIXED TIMEFRAME UNLESS EPA WITH THE CONCURRANCE OF THE CLEAN AIR SCIENCE ADVISORY COMMITTEE (CASAC) CAN SHOW THAT THERE IS NO SCIENTIFIC BASIS FOR THE REQUIRED CHANGE.

THE OZONE AIR QUALITY STANDARD IS THE ONLY ONE THAT I KNOW OF WHICH IS MORE LENIENT FOR OUTDOOR AIR THAN FOR THE WORK PLACE. THE OSHA STANDARD PROTECTS WORKERS WHILE THE NATIONAL AMBIENT AIR QUALITY STANDARD MUST PROTECT ALL, INCLUDING THE MOST VULNERABLE INDIVIDUALS, THE YOUNG AND THE OLD AND THE

CHRONICALLY IMPAIRED. INDEED IF THE OSHA STANDARD OF 0.1 PARTS PER MILLION OF OZONE AVERAGE FOR AN 8 HOUR WORK DAY WERE SUBSTITUTED FOR THE CURRENT OUTDOOR 0.12 PPM AVERAGE FOR 1-HOUR OUR DATA SHOWS IN NEW JERSEY WE WOULD HAVE 25 PERCENT MORE VIOLATIONS THAN WE DO NOW. THE STANDARD SETTING PROCESS MUST BE REVIEWED. ITS ACTIONS ACCELERATED BUT IT MUST RETAIN GOOD SCIENTIFIC JUDGEMENT.

THANK YOU FOR ALLOWING US TIME TO COMMENT TODAY.

BEFORE THE
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

TESTIMONY OF
JEFFREY L. LEITER
ON BEHALF OF THE
NATIONAL ASSOCIATION OF CONVENIENCE STORES
AND THE
SOCIETY OF INDEPENDENT GASOLINE MARKETERS OF AMERICA

ON S. 1351 THE
"CLEAN AIR STANDARDS ATTAINMENT ACT OF 1987"

Washington, D.C.
June 16, 1987

NOTE: The attachments to this statement have been retained in committee files.

Thank you. My name is Jeffrey L. Leiter. I am an associate with the Washington D.C. law firm of Collier, Shannon, Rill & Scott. I appear today on behalf of the National Association of Convenience Stores ("NACS") and the Society of Independent Gasoline Marketers of America ("SIGMA") (collectively the "Gasoline Marketers"). NACS and SIGMA appreciate this opportunity to present their views on S. 1351, the "Clean Air Standards Attainment Act of 1987." In the few minutes that I have been allotted, the Gasoline Marketers would like to state their opposition to the requirement in the bill that an ozone non-attainment area commit to implementing stationary Stage II vapor recovery controls as a condition for an extension of the Clean Air Act attainment deadline.

Introduction of NACS and SIGMA

NACS is a national trade association comprised of over 1,200 retail company members. The convenience store industry is the fastest growing segment of the food retailing, as well as gasoline marketing, business. Today, there are approximately 54,400 convenience stores in the United States, and motor fuels are sold at more than one-half of these retail locations. The typical NACS member owns the underground storage tanks and dispensing equipment at its convenience stores. The average convenience store retailing gasoline has five hoses and sells approximately 43,000 gallons per month.

SIGMA is a national trade association of approximately 300 chain retailers and private-brand marketers of motor fuels. SIGMA members market refined petroleum products in all 50 States through more than 10,100 retail outlets they own and operate. In addition, SIGMA members supply products to an additional 6,625 retail gasoline outlets. SIGMA members' sales account for nearly 17 percent of the motor fuels sold at the retail level in the United States.

Stage II Controls Should Be Dropped From the Non-Attainment Bill

S. 1351 would make substantial and needed revisions to the Clean Air Act. For an area of the country that will not attain the health-protective ambient air quality standard for ozone by the December 31, 1987 deadline, the measure would provide a five-year extension, if the area commits to certain additional control measures, including stationary Stage II vapor recovery to capture vehicle refueling emissions. S. 1351 would impose more stringent or new nationwide motor vehicle emission controls, including a requirement for onboard refueling canisters on light-duty vehicles beginning with model year 1991. The legislation would further regulate fuels and their contributions to hydrocarbon emissions by limiting the volatility of gasoline to a Reid vapor pressure ("RVP") of nine pounds per square inch ("psi") during the warm summer months.

NACS and SIGMA strongly oppose the requirement that an ozone non-attainment area commit to implementing stationary Stage II vapor recovery controls as a condition for an extension of the attainment deadline. The Gasoline Marketers understand that the Environmental Protection Subcommittee ("Subcommittee") staff's justification for this provision is: (1) Stage II controls are a cost-effective 1/ way to realize hydrocarbon emission reductions; and (2) the at-the-pump controls are an easily implementable, interim measure while the vehicle fleet is being equipped with onboard refueling canisters that also would be required. This justification, while well intentioned, simply is incorrect. Moreover, even if such justification were correct, there remains a fundamental question of equity, particularly where petroleum marketers, including NACS and SIGMA members, would be forced to incur non-income producing capital and maintenance costs for stationary Stage II vapor recovery equipment of questionable effectiveness as the result of Congress and the Environmental Protection Agency's ("EPA") failure to address the vehicle refueling and ozone attainment issues in a more

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1/ The "cost-effectiveness" of any control option is derived by estimating the option's net cost and hydrocarbon reduction potential. From these two estimates, a cost/effectiveness ratio is obtained. This ratio simply is the cost per ton of hydrocarbon reduced. "Net cost" is the cost of control less the benefits (in vapors recovered) it produces.

timely fashion. Accordingly, NACS and SIGMA urge the members of the Subcommittee to delete the stationary Stage II vapor recovery requirement from the bill when it goes to mark-up.

Stage II Controls Are Not Cost-Effective

The section in S. 1351 concerning deadline modifications, including the requirement for stationary Stage II vapor recovery controls, appears to be patterned largely after the suggestions made in testimony earlier this year before the Subcommittee by the State and Territorial Air Pollution Program Administrators ("STAPPA") and the Association of Local Air Pollution Control Officials ("ALAPCO"). While STAPPA and ALAPCO have given NACS and SIGMA opportunities to present their views on the vehicle refueling emissions issue, these air pollution groups continue to labor under the false impression that Stage II controls are cost-effective. STAPPA repeatedly cites without support a cost-effectiveness estimate for Stage II of $687 per ton of hydrocarbons reduced. This unsupported cost-effectiveness estimate has been used by Subcommittee staff as justification for the interim stationary Stage II requirement, eventhough such estimate is inconsistent with other estimates, including those prepared by EPA.

EPA, for example, in its "Red Border review package" that proposes to mandate nationwide vehicle onboard refueling canisters, estimates the cost-effectiveness of stationary Stage II controls in 61 non-attainment areas outside of California at $810 to $1,100 per ton of hydrocarbon reduced. The Agency's estimate is stated in a range because of variables such as the number of nozzles at a retail gasoline outlet, the outlet's gasoline throughput, and the levels of enforcement (which correlate directly to levels of equipment effectiveness). Moreover, EPA's calculation does not include consumer inconvenience costs. If an average consumer inconvenience cost of about ten cents per refueling event is added to the calculation, the cost-effectiveness of Stage II is estimated by EPA to be $2,700 to $3,600 per ton of hydrocarbons reduced. [2/] NACS and SIGMA, eventhough they dispute some of the Agency's methodology in calculating Stage II costs, has more confidence in EPA's analysis.

Some Subcommittee staff also have cited an analysis of Stage II capital and maintenance costs prepared in April 1987 by the Radian Corporation ("Radian") under a subcontract to Multinational Business Services, Inc. ("MBS"). MBS is under contract to the Motor Vehicle Manufacturers Association. The Radian study, which cites a cost-effectiveness estimate for Stage II similar to STAPPA, is seriously flawed. The Radian analysis is based on a survey of 34 bids for implementing Stage II controls in St. Louis. Using the total cost derived from these bids, Radian proceeded to break down these costs into components. The "total capital costs" by station size then were generated by fitting a regression line to the data. Eventhough statistical problems, particularly large variances, are acknowledged by Radian, the regression analysis remains the primary component of the Radian approach. NACS and SIGMA could continue with a point-by-point attack on the Radian study. However, the "bottom line" is that the Radian estimate simply is wrong.

According to data from NACS and SIGMA members in California, the capital cost to install Stage II equipment ranges from $15,000 to $25,000, depending upon the number of nozzles at the retail outlet. These capital costs include the incremental purchase costs of the Stage II nozzle and hose, site-specific engineering, and installation permit and certification costs. The nozzle and hose costs include the hose retractor, vapor check valves, swivels, island swivel, hood, and hook. In addition to these capital costs, annual maintenance costs run between $2,000 and $3,000. These maintenance costs include rebuilt nozzles, new hoses, boots and face plates, as well as annual permit

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[2/] "Inconvenience cost" is the amount consumers would be willing to pay on average to avoid using Stage II controls. EPA has assigned a value of one cent per gallon for the consumer inconvenience factor.

fees and labor. Using actual cost estimates similar to the Gasoline Marketers', the American Petroleum Institute has calculated the cost-effectiveness of stationary Stage II in non-attainment areas at $2,000 per ton of hydrocarbons reduced. [3/]

Based upon the foregoing, NACS and SIGMA challenge the use of the STAPPA cost-effectiveness estimate in justifying Stage II controls for non-attainment areas. Moreover, the Gasoline Marketers' question the estimate where one considers the broad geographic nature of ozone attainment problems. S. 1351 acknowledges that the ozone problem is a regional one. Hydrocarbon emissions in attainment areas may be transported through the atmosphere into adjacent non-attainment areas. This phenomenon complicates a non-attainment area's attempt to reduce exceedances of the ozone standard. Further, ozone levels change with the temperature and other factors. According to New York's Department of Environmental Conservation, the New York City metropolitan area was not in compliance with the ozone standard for a portion (25 hours) of six days (May 31, June 1, June 15, June 27, July 6, and July 18) in calendar year 1986. It is estimated that Stage II capital costs for the New York City metropolitan area would be $300 million. Such a capital investment, plus maintenance costs, is an enormous burden to place on petroleum marketers for 25 hours of violations on six calendar days, particularly when the air pollution may have been transported across State lines.

Stage II Cannot Be Implemented Quickly

NACS and SIGMA do not agree that stationary Stage II vapor recovery controls are easily implementable. The Gasoline Marketers assume that Stage II has been included in S. 1351 because it is believed that at-the-pump controls can be implemented quickly while the vehicle fleet is being equipped with onboard refueling canisters. The Subcommittee should not be too optimistic about the time period required to install

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[3/] This cost-effectiveness estimate increases to $2,400 when exemptions for low-volume outlets are included.

stationary Stage II equipment. Given the number of non-attainment areas that would be required to adopt State II controls, there will be a significant problem of developing sufficient contractor expertise for the installation and maintenance of the Stage II equipment. This problem will cause further delays. Moreover, specialized materials suppliers must be relied upon to deliver necessary materials and quantities of Stage II equipment.

NACS and SIGMA estimate that the typical time to retrofit an existing retail gasoline outlet with stationary Stage II equipment is 15 days. For the 4,000 retail gasoline outlets in the New York City metropolitan area estimated to be subject to the New York's recently-adopted Stage II rule, it would take 60,000 days or approximately 164 crew years to install the required stationary Stage II equipment. Even with the possible addition of installation crews from a very tight labor market in New York, it is easy to see the massive disruptions which would be caused.

It has been suggested that the installation of stationary Stage II equipment could be tied to the upgrading and replacement of underground storage tanks under EPA's pending underground storage tank rules, which were mandated by Congress in the 1984 amendments to the Resource Conservation and Recovery Act. Further, it has been suggested that the linking of Stage II to the underground storage tanks regulatory program would reduce the costs of Stage II (and thereby, improve its cost-effectiveness as an air pollution control strategy) by allocating certain of these costs to the tanks program.

As to the timing of tank upgrades and replacements, EPA has proposed that existing underground storage tanks be upgraded or replaced to new tank standards over a ten-year period. The Agency, however, would require that a method of leak detection be retrofitted within a three-to five-year period, depending upon whether the tank is protected against corrosion. In the recently-concluded public hearings on EPA's proposed tank rules, a number of commenters, including NACS and SIGMA, recommended that the

Agency provide additional phase-in time to satisfy the leak detection requirements. These commenters cited limits on equipment availability, a lack of competent contractors, and the problems in obtaining necessary financing. Even if EPA does not lengthen the time period for the leak detection phase-in, tank owners and operators still would have ten years to upgrade their existing tanks to new tank standards -- that is, add corrosion-protection. Thus, if the installation of stationary Stage II vapor recovery equipment were to be coordinated with the upgrading or replacing of underground storage tanks, the additional time would provide no emission reduction benefit, because the vehicle fleet will be in the process of being equipped with the onboard refueling canister at the same time.

Moreover, as to costs, the coordination of the Stage II and tanks regulatory programs highlights a flaw with the justification that certain Stage II costs can be allocated to the underground storage tanks program. Congress would be taking the money out of one pocket, rather than the other pocket. However, both pockets belong to the same pair of pants. Stated differently, petroleum marketers, including NACS and SIGMA members, are facing an array of new environmental requirements requiring substantial amounts of money for non-income producing expenditures. Given current market conditions, it is likely that such costs cannot be completely recovered in the per-gallon selling price of gasoline, thereby resulting in competitive distortion in the marketplace.

Accordingly, there is a basic question of equity which the Subcommittee must address. If Congress can obtain the biggest environmental "bang" by having petroleum marketers spend their limited resources on tank upgrades and replacements, then they should not be saddled with additional Stage II costs. This equitable consideration also should be addressed in the light that Congress and EPA have failed to deal with the vehicle refueling emissions issue in a timely fashion. Because of these delays, Congress now is forcing a small, discrete section of the population to bear a disproportionate burden of and cost for cleaner air. The Gasoline Marketers do not like to breathe dirty air more than anyone else, but fair is fair.

Volatility and Onboard Controls are Sufficient

There are several issues that appear to have been overlooked by the Subcommittee in drafting S. 1351 and the requirement for stationary Stage II controls. Assuming that volatility controls are imposed in early 1990 and motor vehicles, beginning in model year 1991, are equipped with onboard refueling canisters, NACS and SIGMA doubt that any attempt has been made to calculate the cost-effectiveness benefits that would be provided by also installing stationary Stage II vapor recovery equipment. The Gasoline Marketers assume that such Stage II installations would begin in 1990 (assuming that the revised State implementation plans are submitted and approved in 1989). The volatility controls provide immediate reductions in all areas of mobile source emissions -- tail-pipe, evaporative, and refueling. Given the staggered implementation of stationary Stage II controls, and NACS and SIGMA estimate that a six-year implementation schedule is more reasonable, it is likely that the volatility controls, combined with the increasing number of vehicles equipped with the onboard refueling canister beginning in late 1990 (when the 1991 models are introduced), will provide greater emissions benefits over the period that Stage II would be installed. Thus, stationary Stage II controls are unnecessary.

NACS and SIGMA have not taken a position on volatility controls. However, it is questionable whether reductions of the magnitude proposed are necessary. Congress must recognize that too steep a reduction in allowable RVP could create competitive distortions in the gasoline marketplace, as the cost of RVP reductions will affect refiners differently as the allowable RVP is lowered. In addition, NACS and SIGMA are concerned with the effect of RVP reductions on ethanol-blended fuels.

Onboard Canisters are not Redundant to Stage II

NACS and SIGMA take exception to comments by the automobile manufacturers that onboard refueling canisters are redundant if stationary Stage II vapor recovery controls are imposed. The Gasoline Marketers would like to call to the Subcommittee's attention a recent memorandum prepared by California's Air Resources Board ("CARB") staff. This memorandum (a copy attached) concludes that even with stationary Stage II in place throughout most of the State, California can achieve significant additional emissions reductions by equipping California cars with an onboard refueling canister. The CARB analysis properly recognizes the higher efficiencies of the onboard canister. Legislation (A.B. 792) that would mandate the onboard refueling canisters in cars registered in California beginning in model year 1991 cleared the California Assembly's Transportation Committee during the first week of June.

Consumer Problems With Stationary Stage II Are Enormous

Another important concern to the Subcommittee, although less easily quantifiable, is consumer "avoidance" and acceptance of stationary Stage II. Despite the development of more "consumer friendly" Stage II equipment, motorists in the non-attainment areas will find stationary Stage II equipment awkward and unwieldy. Many self-service customers are likely to experience problems with spills on their clothing and shoes as a result. Initial consumer response to stationary Stage II vapor recovery equipment, particularly in the District of Columbia, has not been favorable. Because even the newer Stage II nozzles are heavier than existing, conventional nozzles, the Stage II equipment will inconvenience and will penalize those who have difficulty coping with the Stage II nozzle because they will have to spend more for full-service gasoline. An EPA study of customer habits in Washington, D.C. revealed that motorists will wait in line for a full-service pump, rather than wrestle with the unwieldy Stage II nozzle. Such higher costs will be borne most heavily by people on fixed incomes, such as the elderly and the disabled.

The Subcommittee should reject any suggestion that California's experience with stationary Stage II vapor recovery controls is readily adaptable to other non-attainment areas. In particular, the climate in most areas in California where Stage II equipment is installed is milder throughout the year than non-attainment areas in the Midwest, Northeast, and Middle Atlantic States. Thus, there is little experience with the operation of Stage II equipment, particularly by self-service customers, in cold weather. Many customers are unlikely to "fight" the Stage II nozzle in freezing temperatures.

NACS and SIGMA members are sensitive to consumer responses to stationary Stage II vapor recovery equipment because the majority of gasoline sold today in the United States is dispensed through self-service pumps. We do not want customers throwing the vapor recovery nozzle onto the outlet driveway in disgust and driving away. It simply is not good business.

The Subcommittee also may question why the complaint rates with stationary Stage II in California and the District of Columbia are not higher. Self-service customers unhappy with stationary Stage II vapor recovery equipment in these jurisdictions have learned successfully how to use the vapor recovery nozzle in a manner that makes it easier for them to pump gasoline into their vehicles, but which defeats the proper operation of the system in capturing gasoline vapors. This customer avoidance, combined with the usual unwillingness of a consumer to complain if the complaint has to be reduced to writing and submitted to a governmental agency, strongly suggests why the complaint rates are not higher. Such motorists simply will not complain when the have figured out how to "get around" the Stage II nozzle.

NACS and SIGMA do not wish to overdramatize the problems which result from consumer dissatisfaction with stationary Stage II vapor recovery equipment. However, it is clear that Congress must weigh carefully whether the likely consumer response warrants the imposition of costly, stationary Stage II vapor recovery controls, particularly when questions remain as to the effectiveness of the equipment in achieving the desired reductions in refueling emissions.

Consumer dissatisfaction with stationary vapor recovery systems can compound the Gasoline Marketers' problems if a Stage II requirement is implemented in a manner which enables the unhappy motorist to drive to another retail gasoline outlet in the area without stationary Stage II vapor recovery equipment. The migration of customers to these retail gasoline outlets without stationary Stage II controls is counterproductive to the environmental objective in mandating stationary Stage II. Moreover, the operators of these outlets can increase their volumes to the regulatory thresholds, further exacerbating the problems of independent gasoline marketers in recovering their costs of installed Stage II systems.

Stage II Requires Extensive Enforcement

NACS and SIGMA question the willingness of State and local governmental units to enforce stationary Stage II vapor recovery requirements. Stationary Stage II vapor recovery systems require substantial maintenance to perform their functions. Thus, absent an extensive and expensive enforcement program, such maintenance costs will not be incurred. Thus, according to EPA, the effectiveness levels of Stage II will vary between 62 and 82 percent, depending on the level of enforcement. Given budget limitations and the permit and inspection fees which can be charged to gasoline outlet operators, there remains the question as to how aggressive the enforcement will be across all of the non-attainment areas. Given the experience of the District of Columbia, it is reasonable to assume that the levels of enforcement will vary considerably and, therefore, the benefits from stationary Stage II controls actually will be less than estimated.

Conclusion

Based upon the foregoing, the Subcommittee should not include a provision in S. 1351 requiring stationary Stage II vapor recovery controls as a condition for extension of the ozone attainment deadline. A nationwide program of vehicle onboard controls, as set forth in the bill, is the best approach to controlling and reducing vehicle refueling emissions. Moreover, NACS and SIGMA urge the Subcommittee to be mindful of the equitable distribution of costs in imposing further Clean Air Act controls, particularly stationary Stage II. Gasoline Marketers are facing other environmental "investments" over the next few years with very limited resources and uncertain cost recovery potential.

NACS and SIGMA appreciate this opportunity to present their views. I will be happy to respond to any questions my testimony may have raised.

STATEMENT
OF
JOHN WALLAUCH

Systems Control, Inc.
Palo Alto, California

Before the
Subcommittee on Environmental Protection

of the

Committee on Environment and Public Works
United States Senate

on

S. 1351
Clean Air Standards Attainment Act of 1987

June 16, 1987

Mr. Chairman and members of the Subcommittee, my name is John Wallauch. I am Division Manager of Advanced Vehicle Systems Division, Systems Control, Inc. I would like to extend my appreciation to the members and the staff of the Subcommittee on Environmental Protection for this opportunity to comment on S. 1351 and to share with you our experiences as a provider of contractor-operated motor vehicle inspection and maintenance programs.

Systems Control, Inc. is a California-based computer systems company. Systems Control's long history of performance in motor vehicle I/M program development and implementation qualifies it as a leader in centralized program design, implementation, and operation.

Systems Control specializes in turnkey implementation of computer-based, real-time control and information systems. This involves the design and integration of computer systems, data acquisition, process instrumentation, and the development of software and special hardware products to meet individual customer needs. Systems Control is also involved in a variety of research/development and consulting projects in such areas as automotive emissions testing systems and vehicle safety testing systems.

The vehicle and consumer systems and services group of Systems Control was created in March 1978 by the purchase of the assets of Olson Laboratories, Inc., a well-known vehicle emission testing laboratory and consulting firm. This group has over seventeen years of experience in the evaluation, designing, and implementation of vehicle inspection programs, sophisticated federal emission testing, and transportation-related systems analysis and development. Specific expertise includes testing, characterization and diagnostic inspections as they relate to emissions, fuel economy, and the safety of automotive systems. This group was responsible for the system design, implementation and current operation of the vehicle emission inspection programs in the States of Washington, Maryland, and Illinois, and is currently operating "quality assurance and referee" (decentralized) projects for the State of California and the City of Anchorage, Alaska.

Prior to joining Systems Control, Inc, in 1985, I was with the State of California for over 13 years as Deputy Chief of the Bureau of Automotive Repair. During my tenure, the State of California achieved a number of noteworthy advancements in the area of in-use motor vehicle emission controls inspection and maintenance. In 1965, California was the first state to mandate inspections of vehicle emission controls at the time of a change or transfer in a vehicle's ownership. Subsequent activities in California involved the first effort to develop and test the feasibility of high through-put, state-operated centralized inspection lanes. Following a successful trial effort, a mandatory centralized contractor-operated program was conducted for 5 years (1979-1984). Upon the transfer or change in their ownership, vehicles were subjected to full anti-tampering checks and loaded mode testing for emissions, including nitrogen oxide.

In 1984, the California Bureau developed what is now known as the BAR 84 tamper-resistant garage analyzer specification. Garage analyzers meeting this specification are used in a number of decentralized programs and are commonly referred to as computerized garage analyzers.

Therefore, I have had the opportunity to become completely familiar with all aspects of in-use motor vehicle emission inspection, tests, and repair activities. I have experience with both the centralized and decentralized approaches which have been tested in both trial and fully-operational environments. Their strengths and weaknesses have been thoroughly studied and evaluated. The centralized approach has been found to be the most effective and least costly method. In addition, centralized inspections provide affirmative consumer protections.

This endorsement of the centralized approach is not simply a biased position of a company involved in contractor-operated programs, but has been substantiated during numerous program audits conducted by the Environmental Protection Agency ("EPA"). EPA's detailed audits have shown that the decentralized (garage-operated) programs do not achieve the anticipated levels of emissions reduction. Whereas the centralized (state and contactor-operated) programs have received high marks for their overall performance.

I. TECHNOLOGY

The technology of a centralized program includes the design of equipment and computer interfaces that yield a high volume, effective and efficient operation. Each test lane can typically achieve between 40,000-50,000 inspections per year. With high volume testing, a centralized inspection program can employ state-of-the art technology in an economic and cost-effective manner.

A high-technology system uses sophisticated automated inspection equipment and procedures. The inspection routine is standardized and consistent. Standardization results in uniform and reliable inspections. Instrumentation is subject to strict calibration requirements that guarantees the motorist accurate measurements. Computer technology allows interactive data handling, collection, processing and instant analysis. Also, for motorist protection and peace of mind, the pass/fail decision is controlled by the computer, thereby eliminating subjective judgments, human error, and tampering with test results.

Due to the large number of inspection stations necessary for a decentralized program, state-of-the-art computer technology cannot be used. It is far too costly for a state to provide such sophisticated technology at multiple locations that each handle far fewer annual inspections. Thus, the technology employed in a decentralized program is one that is suitable for a low volume operation.

Typically, licensed private garages average from 600 to 1,000 inspections per year. With such a low volume of annual inspections, garages are not able to invest the large sums of money and personnel training necessary for high technology equipment. Most decentralized I/M programs use manually operated analyzers. Data is manually recorded and there is no on-site calibration control. New analyzers referred to as BAR-84 are being used in a limited number of programs. This new generation of computer-controlled garage analyzers require large initial investments, ongoing maintenance contracts and, therefore, increase significantly the surveillance and other administrative and operational costs to the state.

High technology systems used in centralized I/M programs also facilitate the reduction of nitrogen oxides. (NO_x). Due to the increasing concern over acid rain, there is a growing emphasis on controlling and reducing NO_x. The need, therefore, for sophisticated in-use testing technology will increase. The centralized I/M program can provide the needed high technology at a reasonable cost today.

The procedure for testing vehicles for NO_x requires the use of a loaded test (a device to simulate on-road driving conditions) commonly known as a dynamometer. With a decentralized system, such technology is not cost-effective.

Thus, the state cannot afford to install and maintain the necessary instrumentation at each decentralized location to perform NO_x testing. However, with a centralized system, dynamometers and other necessary equipment can be employed for only a few additional cents per inspection fee due to the high volume of inspections at a central location and effective network design.

Another advantage to the technological superiority of centralized facilities is that reinspections allow the state to evaluate repair industry performance and the overall effectiveness of the program. Evaluation of repaired vehicles is efficient and the state can easily follow-up and take corrective action when repairs are not effective or complete, or when consumers are victims of unnecessary repairs or charges.

In addition, sophisticated computer technology that is cost-effective only in a centralized system allows for daily computerized data reports providing a variety of useful information, such as data for recall programs, identification of gray market foreign vehicles which do not meet EPA standards, stolen vehicles, odometer rollbacks, and early detection of manufacturer defects. Centralized programs can assist in recall efforts because the computer technology has the capacity to readily identify vehicles involved in recall programs and to flag test records for future analysis.

II. COSTS OF PROGRAM OPERATION

Volume is a critical factor affecting cost. As previously discussed, centralized programs are high volume programs. The design of a centralized program maximizes the use of land, facilities, equipment, and labor to provide the most cost-effective approach to I/M programs. In addition, a contractor-operated centralized program is 8.5% to 12% cheaper to operate than a program operated by the state. A private contractor will invest millions of dollars into the state for implementation and operation of the program. With a contractor-operated centralized program, state costs, which typically consist of administrative and contract audit functions, are very low.

Moreover, centralized programs create an entire new industry within the state and, therefore, a source of new jobs. In addition, a new tax base for both local and state governments is created along with direct and indirect local economic development.

The costs associated with decentralized programs are 40% to 50% higher than centralized programs due to low volume operations of decentralized programs. Typically, with a decentralized program, a larger number of garages than is needed to service the fleet becomes involved in the program. When the costs of equipment, labor, land, overhead and profit are considered, the inspection costs associated with the decentralized programs are much higher than those of the centralized programs.

Furthermore, a decentralized I/M program imposes substantial costs on the state in terms of the size of the government organization required to monitor and oversee large numbers of licensed garages and to administer the program.

III. PROGRAM EFFECTIVENESS

The overall effectiveness of motor vehicle emission inspection programs has been well-documented in both reports from states and from the Environmental Protection Agency.

A summary of the relative effectiveness of centralized and decentralized programs is contained in Appendix I.

Although both program approaches are effective in reducing the level of ambient HC and CO, centralized programs have shown themselves to be significantly more effective. For example, a recent Colorado study showed that a change from a decentralized program to a centralized program would result in a 91% improvement in effectiveness. *See* Appendix.

IV. CONSUMER CONVENIENCE

Consumer convenience is also a very important issue in evaluating various I/M programs.

Often the single most discussed issue regarding consumer convenience is the consumer's driving distance to the inspection facility. Driving distance, however, is most likely the least important factor to most motorists when compared to such issues as cost, test integrity and reliability, and most important, effectiveness of the program in reducing air pollution. Opinion polls in California and Maryland have demonstrated that public acceptance of centralized programs has been high.

With centralized programs, the general objective is to design the network to locate I/M facilities so that 85% to 90% of the population is within a 5 mile driving radius of a facility. This is controlled by the state and is generally specified in the request for proposals and specifically negotiated into the contract. When designing the program network, inspection facilities can be strategically located in outlying areas to improve convenience to motorists. Mobile units can also be used to service special consumer needs. It should be kept in mind that people living in the outer fringes of inspection areas (10%-15%) are accustomed to driving further to conduct routine business affairs and are not truly inconvenienced. Their choice of homesite often reflects a chosen way of life.

Waiting times at centralized facilities are not a problem as documented by program managers in such states as, Arizona, Connecticut, Maryland, Illinois, Washington and Wisconsin. Average per inspection waiting times are 0-5 minutes. It is true that the last two days of the month are the worst case conditions. Waiting times then rarely exceed 15 minutes on the average. Some problem may be experienced during program start-up because there is a learning curve period for contractor personnel and for the public. Also, waiting time is one element which the state can control. Contractor-operated programs generally operate under contract provisions which impose financial penalties when waiting times become excessive. Financial penalty provisions should be negotiated into contracts. Another way to guard against delays is to add part-time staff at peak hours and during the end of the month.

Decentralized programs have a large number of licensed garages. Thus, driving distances may be short. This is an inconsequential factor, however. Our analyses of motorist driving habits have indicated that many consumers drive 5 miles or more to and from work, to conduct other business, and to have vehicles inspected. Moreover, as previously discussed, careful planning of the location of centralized facilities can avoid significant driving distances.

With a large number of licensed garages, it may be perceived that waiting times would be short. This is not an accurate perception, however. Inspections are a very small part of the day-to-day activities of an average garage. It is generally a rare occurrence that a vehicle will be inspected immediately upon arrival at the local garage. Quite often, the consumer must leave the vehicle and pick it up some time later. Due to the significant differences in the inspection technologies employed, the decentralized inspection process requires from 15-20 minutes to complete, whereas a centralized inspection is completed in 2-3 minutes.

As an example of long delays experienced with a decentralized program, the State of Missouri had to amend its regulations to require that vehicle inspections must be completed within two hours of arrival, unless longer delay was due to the inspection of other vehicles. This amendment was a result of many consumer complaints regarding excessive waiting times.

V. CONSUMER PROTECTION

Consumer protection should be one of the most important issues evaluated when determining which type of motor vehicle emission control program to implement.

The centralized program contains a number of key consumer protection features not available in the decentralized, garage inspection programs.

The question of conflict of interest is an inherent part of a system in which both the inspections and repair functions are performed by the same individual or facility. Indeed, the primary business of garages employed in a decentralized auto inspection program is to repair vehicles. When the pass/fail decisions are manual, human error and/or tampering can result in consumer abuse and costs.

In a centralized program, the inspection process is completely separated from repair functions. This eliminates any potential conflict of interest that a garage, which inspects and repairs vehicles, may face. The sole purpose and business of a centralized inspection system is to inspect vehicles. Such a system does not perform adjustments or repairs. Centralized staff have no financial interest in the outcome of the inspections. Thus, the consumer receives an unbiased and independent assessment of the vehicle's condition.

The high technology centralized system insures that all consumers receive the same impartial test which employs standardized procedures and meticulously calibrated equipment. Automated pass/fail decisions essentially eliminate human error and the possibility of tampering with the test results. Furthermore, computerized diagnostic information can aid the motorist and the mechanic, and can lower repair costs.

It is extremely difficult, costly and time-consuming to protect the consumer in a decentralized system. Uniformity problems, due to variations in equipment, capabilities/motivation of personnel involved, and quality control of maintenance and calibration of equipment all make it difficult to protect consumers in a decentralized program.

In addition to the bill's requirements of centralized vehicle emission control inspection and maintenance programs, we strongly support the specific cost requirements for waivers, nonattainment population size and other program design requirements.

CONCLUSION

In summary, Systems Control strongly supports federal requirements for centralized I/M programs. The evidence on the superiority of the centralized system is clear, convincing and overwhelming. Audit results uniformly substantiate that centralized programs:

- are technically far superior and more effective in achieving air quality objectives;
- provide uniformity, accuracy and reliability in testing;
- eliminate illegal testing and false failures;
- provide timely, accurate collection of useful data (e.g. to assist in vehicle recall programs);
- reduce state administrative costs;
- protect consumers and eliminate potential conflicts of interest; and
- have substantial positive economic impact on localities and states in terms of new, large private investment; use of local suppliers; introduction of new, permanent jobs; contribution to tax base; and indirect economic development.

Again, I would like to thank the Subcommittee for giving us the opportunity to present this information.

APPENDIX

A. CENTRALIZED PROGRAMS:

- New Jersey program (oldest program, start 1974)
  - Fail rate 20%

    CO emissions down 73.4%, of which 21.4% attributed to I/M and 52% to new car technology
  - Ambient CO reduction 51%
- Oregon (second oldest program, start 1975)
  - Biennial program
  - Ambient CO reduced 33%
  - Ambient HC levels reduced 25%
- Arizona (third oldest program, start 1976)
  - Failed vehicles 60% cleaner in both HC and CO after repair
  - 40% fleetwide reduction in both pollutants
  - Ambient ozone levels holding steady despite annual increase of 5% in vehicle miles travelled
- Connecticut (start 1983)
  - Average fleetwide reductions 39% HC and 25% in CO
  - 32,000 tons less HC and 168,000 tons CO, first year
  - Ambient changes not yet available
- Maryland (start 1984)
  - Ambient CO levels reduced by over 12% by I/M
  - Repaired vehicles achieve a 50% reduction in HC and CO emissions
  - Ambient ozone level reduction attributed to I/M

- Wisconsin (start 1984)
  - After repair failed vehicles show 65-70% reduction in tailpipe emissions (183 PPM HC and 2% CO)
  - Ambient date not available
- Washington (start 1980)
  - Average fleetwide reduction 35% HC and 50% in CO
  - I/M program is reducing CO and HC emissions from vehicles in Seattle and Spokane
  - Air Quality improving, ozone standard achieved and CP close to being achieved
- Illinois (start 1986)
  - Failure rate at 14%
  - Emission reduction data not available at this time

B. DECENTRALIZED PROGRAMS:

- Colorado (started 1982)
  - Colorado health department assessment of inspection program readjustments:

    Option 1 - retain present program with BAR-74 analyzer with five additional procedures provides 35% improvement.

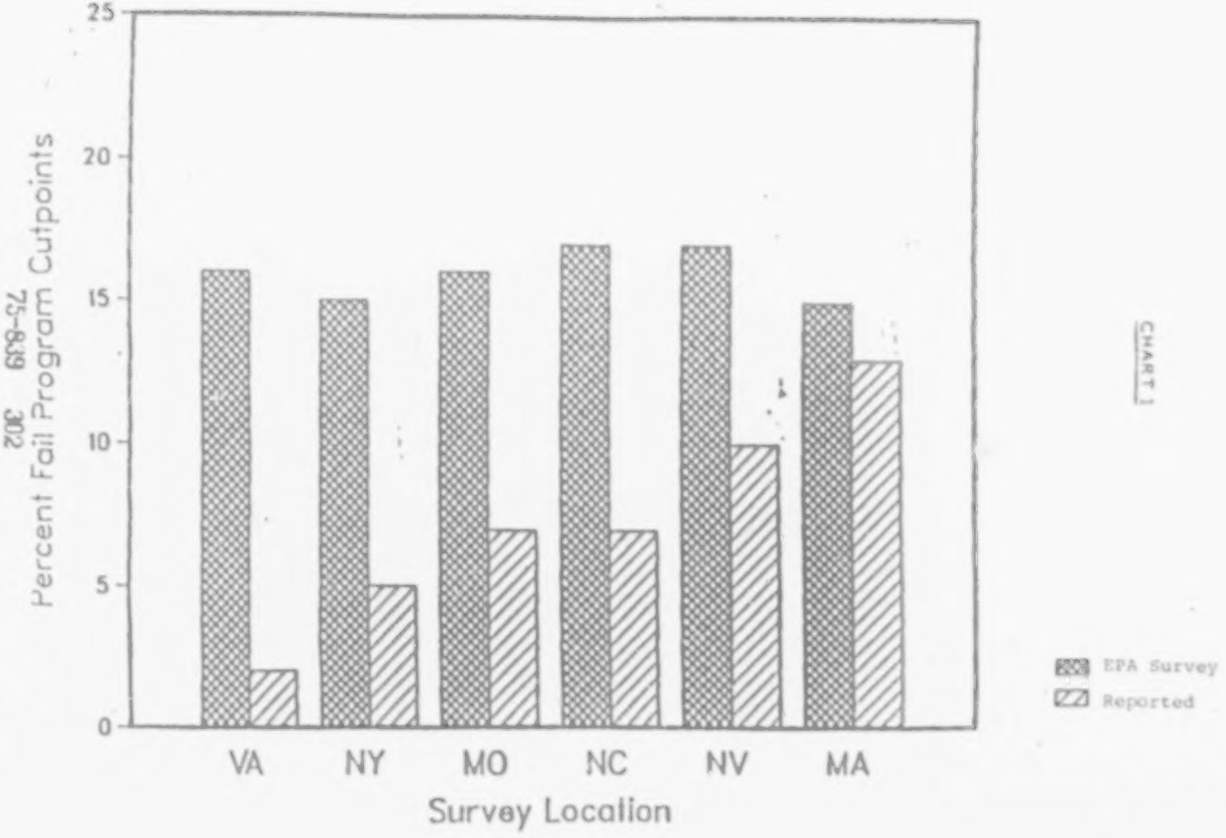
    Option 2 - retain decentralized with BAR-84 analyzers for all inspections provides 53% improvement.

    Option 3 - Change to centralized program provides 91% improvement. Centralized program will fail 30% versus present 12%, increasing income to repair industry almost three times present program income.
- Virginia (start 1981)
  - No air quality results to report
  - No tailpipe comparisons to report to nature of program (manual reporting)

- New York (start 1981)
  - New York has computerized analyzers
  - New clear ambient results
  - Sampling of 5000 vehicles in '81, '82, and '83: shows 13% drop in CO emissions from '81 to '82, the 4% increase in '83. HC emissions dropped 12% from '81 to '82, then 10.6% increase in '83.
- Missouri (start 1984)
  - No results available
- North Carolina (start 1982)
  - No ambient results to date
  - Failed vehicles show 63% less CO and 45% less HC emissions after repairs
- Nevada (start 1983)
  - Failed vehicles show 30-35% reduction in CO after repairs
  - No HC data kept
- Massachusetts (start 1983)
  - Mass. has computerized analyzers
  - Fail rate 13%
  - Fleetwide reductions 9% HC and 16% CO
  - No ambient data available
- Comparison of failure rates with EPA survey data (Chart 1)
  - Reported failure rates are significantly lower than failure rates measured by EPA roadside survey data
  - Increase in "false failures", i.e., failure to identify vehicles that should fail and very probably failing vehicles that should not fail (poor technology)

CHART 1

COMPARISON OF IDLE TEST FAILURE RATES
FROM CERTAIN DECENTRALIZED PROGRAMS



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RITER MARKETING RESEARCH, INC. 31 BRUCESTER BRIDGE COURT • BALTIMORE, MD. 21228 • (301) 247-9070

On-Site Motorist Survey
# of Maryland Vehicle Emissions Inspection Program

March 1986

Conducted for
Systems Control, Inc.
Columbia, Maryland

NOTE: The following has been excerpted from the above-named report. The report, in its entirety has been retained in committee files.

Executive Summary

1. Evaluation ratings for the Emissions Testing Facilities are extremely positive. With the exception of convenience of the station to where people work, no performance measure received a negative rating of 10% or more. Of those surveyed, in fact, the typical negative ratings were quite low, i.e., in the 1 - 9 % range.

2. Overall, ratings by stations vary significantly. Variability in ratings appear to be both a function of the particular station, and time of month. Most of the variability is due to time of month. The latter can be attributed to the fact that the public has a tendency to wait until the end of the month to get their vehicles tested. This increases volume during the last week of the month.

3. Cash only policies do not represent an inconvenience to the vast majority of motorists. In fact, accepting checks and charge cards potentially would result in motorists being annoyed due to the potential slowing down of processing cars; the latter probably would be acute at the end of the month.

4. Over eight out out of ten motorists believe their interests are best protected by the separation of emissions testing and repairs.

On-Site Motorist Survey of Maryland Vehicle Emissions Inspection Program

Introduction

Background and Purpose

In 1984, Maryland began mandatory annual emissions testing of motor vehicles in order to reduce certain air pollutants (i.e., hydrocarbons and carbon monoxide). This program is administered by a private contractor, Systems Control, Inc., which operates 10 emission testing facilities in the Maryland suburbs of Washington and the Baltimore metropolitan area. Since inception of the program, no studies have been done to assess the reaction of motorists to the test stations.

This report documents the results of a customer satisfaction study conducted to measure efficiency, personnel, and testing procedures of the Vehicle Emission Test Stations.

A secondary objective of the study was to determine consumer attitudes toward method of payment and reactions to keeping the testing procedure separate from repairs.

Methodology

In January and February 1986, a self-administered questionnaire was given to drivers completing the vehicle emissions test at eight testing locations. Drivers were randomly selected by independent, professionally-trained interviewers and asked to take a few minutes to fill out a questionnaire. Upon completion, the respondent returned the questionnaire to the interviewer who then filled in the appropriate station number, date, and time on the questionnaire.

Respondent cooperation was extremely high. Overall, out of 1200 questionnaires, 1126 were completed and 74 were discarded due to either respondent refusal to participate or failure to complete the questionnaire.

Distribution of Questionnaires

		Percent Response
Completed Questionnaires	1126	94%
Non-usable / refusals	74	6
TOTAL	1200	100%

Five stations were surveyed on January 29-30, 1986 and three stations were surveyed on February 7, 1986 to ascertain whether or not the end of the month increase in volume of cars tested had any effect on attitudes toward the testing procedures.

A breakdown of the testing stations and the survey dates is as follows:

Stations Surveyed

Station Location	Percent Response
January 29-30, 1986:	
Baltimore City	18%
Baltimore County	17
Howard County	15
Montgomery County, East	9
Prince Georges County, North	6
February 7, 1986:	
Anne Arundel County	19
Carroll County	8
Harford County	7

A copy of the questionnaire is appended to this report.

Data Presentation

The tables and graphs within the report show responses based on the actual number of respondents who were asked a specific question. In some cases, percentages may add to slightly more or less than 100% due to rounding. Percentages may also add to more than 100% due to the acceptance of more than one answer from a respondent to a particular question. Most tables shown within the report exclude "No Answer" comments. It is common for a few people not to be able to respond or to refuse to answer certain questions in any survey.

Statistical Reliability

Each percentage in this report has an associated range for its probably true value. Thus, on each question, there is a tolerance limit of plus or minus X% associated with the result reported for the total sample, or for any demographic subgroup (e.g., men, non-whites, etc.).

It is possible to compute the range for each reported value, given an established confidence desired in the estimate. A customary procedure is to require that the tolerance (or error) limit specified in each case not be exceeded in 95 out of 100 samples (i.e., if the survey were hypothetically performed on 100 different samples on the same population at the same time, the range of survey results for these samples would fall within that stated error range for 95 out of the 100 samples; only in five samples would results be outside the expected range.

Tolerance limits depend on the size of the sample and on the particular percent response to a question. The following table provides a quick conservative estimate of tolerance limits for a sample of 100, 500, or 1000 with a 95% level of confidence. The maximum error associated with this study is ±3.2% at the 95% level of confidence.

**Estimated Tolerance Limits
With Various Sample Sizes**

Answer	Approximate Tolerance Limits		
	100	500	1000
10% or 90%	± 6.0	± 2.7	± 1.9
20% or 80%	± 5.0	± 3.6	± 2.5
30% or 70%	± 9.2	± 4.1	± 2.9
40% or 60%	± 9.8	± 4.4	± 3.1
50% or 50%	± 10.0	± 4.5	± 3.2

PLEASE SHARE WITH US YOUR OPINIONS

Please assist us by taking a few minutes to complete this questionnaire. You can help us maintain the finest quality service by answering the following questions. Please circle the numbers that indicate your responses. If you are instructed to circle one answer, please circle only **one** answer. Please be sure to read through all other choices before you select your answers.

1. How would you rate the following when you took your emission test?

	Excellent	Good	Fair	Poor	
Courtesy of person doing the testing	4	3	2	1	6
Hours testing station open	4	3	2	1	7
Speed of test	4	3	2	1	8
Convenience of station to home	4	3	2	1	9
Cleanliness of service area	4	3	2	1	10
Convenience of station to work	4	3	2	1	11
Speed of reaching the testing booth after entering the test area	4	3	2	1	12
Accuracy of the test	4	3	2	1	13

2. How many miles is the emission testing facility from your home? From where you work?

Miles from home	______________	14/15
Miles from work	______________	16/17
Do not work	X	18

3. Is there an emission testing facility closer to your home?

Yes	1 ——>	How many miles is this one from your home? __________ (miles from home) (20/21)	19
No	2		
Not Sure	3		

4. Is there an emission testing facility closer to where you work?

Yes	1 ——>	How many miles is this one from your work? __________ (miles from work) (23/24)	22
No	2		
Not Sure	3		

5. Was payment by cash an inconvenience to you?

Yes	1	25
No	2	

6. Did your vehicle pass or fail the emission testing?

Passed	1	26
Failed	2	

7. Was this an initial test for this vehicle for 1986, or a retest?

Initial test	1	27
Retest	2	

8. Under the current emission testing program, an independent company conducts the emission test. If your car fails, repairs are performed by the mechanic of your choice and not the testing company.

Do you believe that your interests are best protected by the separation of the emission testing and any repairs which might be necessary?

Yes, interest protected	1	28
No, interest not protected	2	

9. It has been suggested that the emission testing stations accept credit cards and checks. Do you believe that by accepting credit cards and checks that the speed of service would be slowed down?

Yes	1	29
No	2	

10. Would you object if you would have to wait in line between 2 and 3 minutes for every car in front of you that used checks or credit cards?

Would object	1	30
Would not object	2	

11. Did you have your car serviced before the emission test?

Yes	1	31
No	2	

12. How often do you have a tune-up done on your car?

Once every 3 months or more often	1	32
Once every 4 to 6 months	2	
Once every 7 to 9 months	3	
Once every 10 to 12 months	4	
Less often than once a year	5	

13. The last time you had your car tuned up, did you tune the car up yourself, or did someone else tune your car?

Self	9	33
Spouse	8	
Garage	7	
Gas Station	6	
Car dealership	5	
Friend	4	
Specialty tune up (Precision Tune, etc.)	3	
Specialty tire store (Goodyear, etc.)	2	
Other ____________________ (specify)	1	

14. What make car did you have tested today?

Make ____________________ (34) Year ________ (35/36)

15. What is your current marital status?

Married	1	37
Single	2	
Widowed	3	
Divorced	4	
Separated	5	

16. What is your current employment?

Work full-time	1	38
Part-time	2	
Unemployed	3	
Retired	4	
Housewife	5	

17. What is the last year of school you completed?

8th Grade or less	1	39
Some high school	2	
High school graduate	3	
Some college	4	
2-year college	5	
4-year college	6	
Graduate school	7	
Not Sure	8	

18. What is your age?

18 - 24	1	40
25 - 34	2	
35 - 44	3	
45 - 54	4	
55 - 64	5	
65 and over	6	

19. Which category best represents your total family income?

Under $20,000	1	41
$20,000 but under $30,000	2	
$30,000 but under $40,000	3	
$40,000 but under $60,000	4	

20. In which county or subdivision do you live?

Baltimore City	1	42
Baltimore County	2	
Anne Arundel County	3	
Carroll County	4	
Harford County	5	
Howard County	6	
Prince Georges County	7	
Montgomery County	8	

21. What race do you consider yourself?

White	1	43
Black	2	
Other	3	

22. Are you ....?

Male	1	44
Female	2	

23. License Plate Number of vehicle tested ____________ 45 - 53

Thank you.

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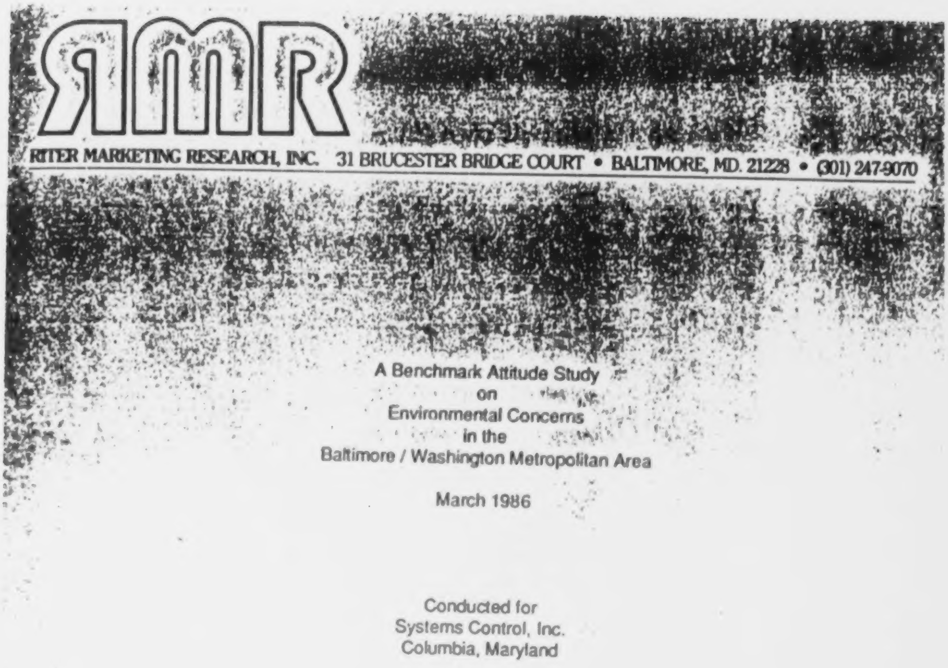

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A Benchmark Attitude Study
on
Environmental Concerns
in the
Baltimore / Washington Metropolitan Area

March 1986

Conducted for
Systems Control, Inc.
Columbia, Maryland

NOTE: The following has been excerpted from the above-named report. The report, in its entirety, has been retained in committee files.

Executive Summary

1. Air pollution is the most salient environmental problem in the metropolitan area. In fact, on an unaided basis, air pollution was mentioned twice as often as the second concern, water pollution (49% vs. 23%).

2. The concern for air pollution relates to one's concern for one's health. Air pollution is seen as causing respiratory problems (33%) and is just plain "unhealthy" (24%).

3. Marylanders, regardless of where they live, identify the automobile as the major cause of air pollution (62%).

4. Marylanders are divided on the quality of air in the metropolitan area. Specifically, 49% rated air quality as excellent/good vs. 47% who rated it fair/poor.

5. The majority of Marylanders favor the annual testing of motor vehicles for emissions (57%) and programs to reduce exhaust emissions (74%). Those who favor the program believe that it is effective in reducing air pollutants. Those who oppose the program do so because it a) does not include all vehicles, b) cost, and c) inconvenience.

6. The vast majority of Marylanders perceived advantages to the separation of emissions testing and repairs (72%). In fact, Marylanders favor keeping emissions testing and repair separate (77%). The separation of emissions testing and repairs eliminates conflict of interest. Those who are in favor of letting the same people repair emissions systems as well as test, cite its convenience.

7. Evaluation ratings for Emissions Testing Facilities are extremely positive.

A Benchmark Attitude Study
On
Environmental Concerns
In the
Baltimore / Washington Metropolitan Area

Introduction

Background and Purpose

Systems Control has been operating Maryland's Emissions Control stations under contract with the State since 1984. Since the inception of the program, no studies have been conducted to assess the awareness, attitudes, and reactions of Marylanders in the metropolitan areas to environmental concerns and programs.

The purpose of this study was to determine:

- Awareness and attitudes about air pollution;
- Reactions to the Emissions Testing program, and
- Reactions to separation of testing and repairs.

Methodology

Random telephone interviews were conducted with approximately 500 residents of the Baltimore and Washington metropolitan areas of Maryland. Respondents were screened to meet the following criteria:

- Over 18 years of age, and
- Own a 1974 or newer car that uses leaded or unleaded gasoline.

In addition to the above requirements, a quota for sex was established to assure an approximate 50/50 split.

After being qualified for the study, respondents were asked a series of questions to ascertain:

- Awareness of environmental problems;
- Concerns with environmental problems;
- Perception of the causes of air pollution;
- Reactions to air pollution programs;
- Familiarity with Maryland's Emissions Testing Program;
- Reactions to Maryland's Emissions Testing Program;
- Reactions to suggestions to allow payment by check or charge;
- Reactions to suggestions to allow testing organizations to perform repair work; and
- Demographics

The final sample composition represented respondents from the following jurisdictions:

- Baltimore City;
- Baltimore County;
- Anne Arundel County;
- Carroll County;
- Harford County;
- Howard County;
- Prince Georges County;
- Montgomery County

A copy of the questionnaire is attached.

SCREENER

RMR
1/20/86

For Field Use:
Edited by: ____
Validated by: ____
Date Validated __/__/__

Respondent's Name ____

Phone ( ) ____

Interviewer ____
Date of Interview ____
Time Start ____ Time Ended ____
Length in Minutes ____

Client: Air Quality
Project Code: Telephone Tracking

Sex:	M	1
	F	2

Race:	White	1
	Non-white	2

County/City:

Anne Arundel	1
B. City	2
B. County	3
Carroll	4
Harford	5
Howard	6
Prince Georges	7
Montgomery	8

Introduction

Hello, my name is ____ with ____, a national consumer research company located in ____. Today we are conducting a study among adults over 18 years of age in the Maryland area.

1. Is there anyone in your household over the age of 18?

No 1 TERMINATE AND "X" NEXT NUMBER

| 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 |

Yes 2 ASK TO SPEAK TO THE PERSON. IF NOT AVAILABLE, SCHEDULE CALLBACK TIME BELOW:

Name	Date	Result

2. Do you own a 1974 or newer car or truck that uses leaded or unleaded gas?

No 1 TERMINATE AND "X" NEXT NUMBER BELOW
Yes 2

| 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 |

3. Does anyone in your household work for a gas station, automobile dealership, auto repair business, or in the testing of automobiles?

Yes 1 TERMINATE AND "X" NEXT NUMBER BELOW
No 2

| 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 |

4. Does anyone in your household work for an advertising agency or market research firm?

Yes 1 TERMINATE AND "X" NEXT NUMBER BELOW
No 2

| 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 |

MAIN QUESTIONNAIRE

EMISSION SURVEY

Quotas:		
Baltimore	1	
Washington	2	6

1. How would you personally rate the living conditions in metropolitan Maryland? Would you say they are excellent, good, fair, or poor?

Excellent	4	7
Good	3	
Fair	2	
Poor	1	

2. What do you believe to be the most serious environmental problem in metropolitan Maryland? Any others? **(If not sure how to classify, write down response.)**

Air Pollution	1	8
Water Pollution	2	
Noise Pollution	3	
Toxic Waste	4	
Don't Know	5	
Other ____________________ (specify)	6	

3a. How would you rate your concern with the following environmental issues in metropolitan Maryland. Are you very concerned, somewhat concerned, or not concerned? **(READ FIRST "X'D" ITEM IN LIST AND CONTINUE UNTIL ARE READ.)**

START WITH:	Very Concerned	Somewhat Concerned	Not Concerned	
( ) Toxic waste	3	2	1	9
( )Air pollution	3	2	1	10
( ) Water pollution	3	2	1	11
( ) Noise pollution	3	2	1	12

REFER TO ANSWER IN 3A FOR AIR POLLUTION

3b. You said you were (Read response to 3a. for air pollution) about air pollution in metropolitan Maryland. Why do you feel that way?

13

14

4. What do you consider to be the major causes of air pollution? **(DO NOT READ LIST.)**

Automobiles	1	15
Trucks	2	
Industry	3	
Factories	4	

5. Do you support programs which require cars to reduce their exhaust emissions?

Support / Favor	3	16
Do not support / Not favor	2	
Not Sure	1	

6. Do you feel that programs to reduce exhaust emissions from motor vehicles have helped to reduce air pollution?

Yes	3	17
No	2	
Not Sure	1	

7. How would you rate the air quality in the metropolitan areas of Maryland? Is it excellent, good, fair, or poor?

Excellent	5	18
Good	4	
Fair	3	
Poor	2	
Not Sure	1	

8. Compared to a few years ago, would you say that the air quality in the metropolitan areas of Maryland has improved, stayed the same, or has gotten worse?

Improved	4	19
Stayed the Same	3	
Gotten Worse	2	
Not Sure	1	

9. In 1984, Maryland began an annual emission testing program of motor vehicles in order to reduce major air pollutants. Are you familiar with this program?

Familiar	3	20
Not Familiar	2	
Not Sure	1	

10a. Do you favor or oppose the annual testing of vehicles for emissions?

Favor	3	21
Oppose	2	
Not Sure	1	

10b. Why do you feel this way? **(PROBE AND CLARIFY FULLY.)**

22

23

11. Do you believe that the air pollution in metropolitan Maryland from motor vehicles has been reduced

12a. Under the current emission testing program, an independent company under the supervision of the state conducts the emission test. If your car fails, repairs are performed by the mechanic of your choice and not the testing company.

What advantages do you see to not allowing the testing organization to perform any emission repairs? (PROBE AND CLARIFY FULLY.)

25

26

12b. What disadvantages do you see to this? (PROBE AND CLARIFY FULLY.)

27

28

13. Do you believe that your interests are best protected by the separation of the emission testing and any repairs which might be necessary?

	Yes, interest protected	1	29
	No, interest not protected	2	
(Do not read)	Makes no difference	3	
(Do not read)	Not sure	4	
(Do not read)	No answer	5	

14. Do you feel that there would be a conflict of interest if emission inspections were conducted by service stations and garages who could also perform emission repairs?

Yes, conflict	3	30
No Conflict	2	
Not Sure	1	

15a. How many cars or trucks do you own?

Record number _____ 31

15b. Have you had (any of) your car(s) tested since the emission program has begun?

Yes	2	CONTINUE	32
No	1	SKIP TO Q26	

17. About how long ago did you have your last car tested?

Number of Months Ago	____________	34
Not Sure	X	

18. Have you yourself taken (any of) your car(s) through the emission test?

Yes	1	CONTINUE	35
No	2	SKIP TO Q26	

19. Did you go at the beginning of the month, middle of the month, or end of the month?

Beginning	3	36
Middle	2	
End	1	

20. How would you rate (start with "X'D" item) when you took your emission test?

Start With:	Excellent	Good	Fair	Poor	
( ) Courtesy of person doing the testing	4	3	2	1	37
( ) Hours testing station open	4	3	2	1	38
( ) Speed of test	4	3	2	1	39
( ) Convenience of station to home	4	3	2	1	40
( ) Convenience of station to work	4	3	2	1	41
( ) Cleanliness of service area	4	3	2	1	42
( ) Speed of reaching the testing area after arriving at the test station	4	3	2	1	43
( ) Accuracy of the test	4	3	2	1	44

21. Are you satisfied or not satisfied with the way in which the emission testing program is handled?

Satisfied	3	SKIP TO Q23	45
Not Satisfied	2	CONTINUE	
Not Sure	1	SKIP TO Q23	

22. Why do you feel this way? Any other reasons?

46

47

23. Was payment by cash an inconvenience to you?

Yes	2	48
No	1	

24. It has been suggested that the emission testing stations accept credit cards and checks.

25. Would you object if you would have to wait in line between 2 and 3 minutes for every car in front of you that used checks or credit cards?

Would object	2	50
Would not object	1	

26. You may have heard about the suggestion that gas stations and garages be allowed to perform both emission testing and emission repairs if needed. The argument for this is convenience of location. The argument for keeping the testing independent is to protect consumers from unnecessary repairs.

Do you favor or oppose keeping the testing and repairs separate?

Favor	3	51
Oppose	2	
Not sure	1	

27. Do you favor or oppose allowing gas stations and garages to perform both the emission testing and the repair services?

Favor	3	52
Oppose	2	
Not sure	1	

28. How often do you have a tune-up done on your car?

Once every 3 months or more often	1	53
Once every 4 to 6 months	2	
Once every 7 to 9 months	3	
Once every 10 to 12 months	4	
Less often than once a year	5	

29. The last time you had your car tuned up, did you tune the car up yourself, or did someone else tune your car?

	Self		9	54
	Other →	**Was that a (read list and circle response.)**		
		Spouse	8	
		Garage (not specific)	7	
		Gas Station	6	
		Car dealership	5	
		Friend	4	
		Specialty tune up (i.e.,Precision Tune)	3	
		Specialty tire store (i.e., Goodyear, etc.)	2	
(Do not read)		Other ____________________ (specify)	1	

30. Would you say you have a favorable or unfavorable opinion about **(start with x'd item in list)**. **(Circle response. Continue until all are asked.)**

Start With:		Favorable	Unfavorable

DEMOGRAPHICS

These last few questions are for statistical purposes only.

D1. Please tell me what is your current marital status?

Married	1	59
Single	2	
Widowed	3	
Divorced	4	
Separated	5	
Refused	6	

D2. What is your current employment?

Work full-time	1	60
Part-time	2	
Unemployed	3	
Retired	4	
Housewife	5	
Refused	6	

D3. What is the last year of school you completed? **(Do not read list.)**

8th Grade or less	1	61
Some high school	2	
High school graduate	3	
Some college	4	
2-year college	5	
4-year college	6	
Graduate school	7	
Not Sure	8	

D4. I am going to read you some age groups. When I come to your group, please stop me. **(Read groups listed below.)**

	18 - 24	1	62
	25 - 34	2	
	35 - 44	3	
	45 - 54	4	
	55 - 64	5	
	64 and over	6	
(Do not read)	Refused	X	

D5. Now, I'm going to read you some income ranges, and I would like you to tell me which one best represents your total family income? **(Read list.)**

	Under $20,000	1	63
	$20,000 but under $30,000	2	
	$30,000 but under $40,000	3	
	$40,000 but under $60,000	4	
(Do not read)	Not Sure	0	
(Do not read)	Refused	X	

D6. In which county or subdivision do you live?

Baltimore City	1	64
Baltimore County	2	
Anne Arundel County	3	
Carroll County	4	
Harford County	5	
Howard County	6	
Prince Georges County	7	
Montgomery County	8	

D7. To make sure we are speaking with a cross-section of people, what race do you consider yourself?

White	1	65
Black	2	
Other	3	

D8. Are you a registered voter in Maryland?

Yes	1	66
No	2	

D9. (Do not ask. Only record.)

The respondent is:	Male	1	67
	Female	2	

And finally for validation purposes only, may I please have your name?

Respondent's Name ______________________________

I would also like to verify that your telephone number is : ______________

Thank you.

Interview date: ______________ Time ended: __________

Interviewer's Signature ______________________________

Validated by: ______________Validation Date: ________

Testimony of
John Quarles, Chairman
National Environmental Development Association's
Clean Air Act Project
before the
Environmental Protection Subcommittee
Senate Committee on Environment and Public Works
June 16, 1987

Mr. Chairman and Members of the Subcommittee:

I appreciate the opportunity to appear before you today to present testimony on behalf of the National Environmental Development Association's Clean Air Act Project (NEDA/CAAP) on proposed amendments to the Clean Air Act. NEDA/CAAP is a coalition of industry and 15 trade unions of the AFL-CIO.

My testimony will also focus on two issues of far-reaching importance - the ozone nonattainment question and the Prevention of Significant Deterioration (PSD) provisions in the Clean Air Act called into play by EPA actions this month on the particulate matter standard and by a Federal Court's order for EPA to implement the increment provisions for nitrogen oxides. Finally, I will make some observations with respect to the issue of toxic air pollutants in light of reports that Legislation will be offered in the Senate on this issue. These issues are of tremendous importance to the nation's Clean Air Act program and

NOTE: Attachments to this statement have been retained in committee files.

to the regulated and affected communities which NEDA/CAAP represents.

There are six principal points I will make today with respect to the first two issues. First, on the issue of ozone nonattainment:

1. Inaction or a simple extension of the attainment deadlines for ozone and other criteria pollutants will not serve the interests of labor, industry, or the public.
2. Controls for the sake of control, de-coupled from attainment of the air quality standards are burdensome and not an effective attainment strategy. Solutions to the nonattainment problem will only come about as a result of a comprehensive air quality planning and management approach.
3. The ozone nonattainment problem is not as severe as EPA data first appear to suggest. A careful examination of the actual nonattainment problem is needed. Unnecessary loss of jobs and loss of investment in industries needing modernization to remain competitive will result unless the imposition of burdensome controls is reasonably related to the severity of the problem.
4. There need to be developed statistically valid methodologies for air quality impact models and monitoring techniques, in addition to the establishment of procedures for developing technology-based control requirements like RACT and BACT in the public arena.

Secondly, with respect to the PSD program:

5. Congress must amend the PSD increment system in section 163 of the Act. It is no longer consistent with the NAAQS for particulate matter recently signed by Administrator Lee Thomas.
6. In revisiting the PSD provisions in the Act, Congress should repeal portions of Section

> 166, which a Federal Court has ordered EPA to implement to establish PSD increments for the Set II pollutants. It has been established that air quality improvements are accomplished through application of BACT and not by means of such bureaucratically torturous increment requirements.

DISCUSSION

NEDA/CAAP believes that S. 1351 is an important step toward attempting to grapple with an environmental problem that seemingly defies solution. Its drafters have resisted the temptation so often prevalent to impose pollution controls solely on industrial sources, while only paying lip service to other sources and social behavior that contribute to the nation's air pollution problem. Without giving short shrift to that effort, it is nevertheless not apparent that the Bill's drafters have avoided the pitfall of pushing the existing Clean Air Act framework forward in an effort to attain the goals of the act without questioning whether it is a wholly appropriate structure with which to confront the current air pollution problems in this country. The basic approach of S.1351, which is to give five- and ten-year extensions to areas of the country which have not achieved attainment with the national ambient air quality standards (NAAQS), does not do justice to the reality that in many of these areas it will be just as impossible to attain the standards in five to ten years as it is today. NEDA/CAAP believes that the Committee should take the bark off of the log in order to examine the real problem.

1. CONGRESS SHOULD NOT AUTHORIZE A SIMPLE EXTENSION OF THE ATTAINMENT DEADLINES IN THE CLEAN AIR ACT.

It is now clear that a large number of urban areas will not meet the national ambient air quality standards (NAAQS) by the December 31, 1987 attainment dates in the Clean Air Act. This failure will trigger sanctions under the Act which will hurt employment, industry, and the public. Extensions of the attainment deadlines in the Act will avoid these effects for the time being, but extensions will not resolve the fundamental problems which prevent achieving attainment of the NAAQS within the framework of the current law.

Most attention to the attainment problem has focused on the failure to attain the ozone standard. Carbon monoxide is another pollutant of concern. EPA also anticipates that over 100 areas will fail to meet the new PM-10 standard for particulate matter. Nonetheless, ozone is the most direct problem for industry and economic development.

Unlike other environmental laws, which to varying degrees limit control requirements based on considerations of technical feasibility or cost, the Clean Air Act absolutely requires attainment of each NAAQS. The Act requires EPA to base NAAQSs strictly on health considerations without regard to cost, technical feasibility or issues of social and economic disruption. While other laws are designed to reduce the incidence of death or serious health impairment to acceptable levels, the NAAQS are set at a level intended to avoid any adverse health effect at all and with "an adequate margin of safety" -- prohibiting even relatively transient effects or biological responses that may be measurable but so minor that they may not be perceived by an exposed individual or cause any permanent damage. The Act also imposes deadlines by which these standards must be achieved.

This fundamental structure of the Clean Air Act is more protective, more absolute, and more rigid than comparable elements of the Clean Water Act, the Superfund statute, RCRA, FIFRA, the Safe Drinking Water Act, or other federal environmental statutes. It can be trumpeted by health advocates as representing a perfection of protection. Without bowing to pragmatism, it guarantees zero risk. But that guarantee has not produced results. Although the statute commands attainment, society has rejected that command.

In theory, states have the option of developing state implementation plans (SIPs) to meet the NAAQS that employ the most cost-effective and least disruptive measures possible, but they must demonstrate that the plans will achieve attainment. For two pollutants, ozone and carbon monoxide, however, states have had great difficulty developing SIPs that demonstrate NAAQS attainment, and many have not done so. There are a number of reasons for this. In part, the public has resisted the imposition of broadly applicable control measures such as automotive inspection/maintenance programs. States have also been reluctant to impose controls on areawide sources (numerous individually small sources whose aggregate emissions are significant) because such controls will tend to adversely affect small business. More fundamentally, however, even such measures would not be enough in many cases. Many areas could not, and even today cannot, demonstrate attainment without adopting a combination of limits on growth, changes in lifestyles, and retrofit controls on existing industrial facilities that will be more costly and less beneficial than any controls imposed before under any environmental law. Proposals entailing vast disruption, such as the 1973 EPA plan for 86% gasoline rationing in Los Angeles have been laughed into oblivion. The public has not, and will not, support such measures. These circumstances have instead created a universal tacit agreement to disregard the legal requirements of the Clean Air Act.

In contrast to these severe problem areas, there are many areas where the degree of nonattainment is much less, and management of the problem may not [require] unreasonable measures to be taken. In some of these areas, nonattainment is an artifact of unusual weather patterns and errors, distortions, and uncertainties resulting from the way air quality is monitored, the lack of reliability in models used to project air quality, and the statistical method used to determine attainment or nonattainment which tends to exaggerate the importance of minor, short-term or localized exceedences of the NAAQS. Because of local wind and weather patterns and topographic features (e.g., mountains) other areas probably will never meet the NAAQS for ozone, carbon monoxide, or both. In many areas random day-to-day and year-to-year weather variations will heavily affect whether the area is classified as "attainment."

Whatever the cause, if a state fails to meet the standards, the Act prescribes sanctions for EPA to use to force the development of a more aggressive SIP that will meet the standards. 1/ These sanctions, NEDA/CAAP submits are not solutions to the nonattainment problem and should be deleted from the Act. These sanctions will have disparate impacts on different

---

1/ The Act authorizes the following sanctions in ozone nonattainment areas:

- A ban on the construction, significant expansion or modernization of any facility (industrial plants, waste treatment plants, etc.) which has the potential to emit more than 100 tons per year of HC ("major sources").

  EPA has indicated that it will try to restrict this sanction to areas that do not have an approved SIP by the deadline or have not implemented their SIPs, but it may apply to any area that has not actually met the standard by then. EPA also believes that once imposed, construction bans cannot be lifted until the area is actually in attainment. For many areas, that would be in the next century.

- A cutoff of federal highway construction funds for areas that do not have approved ozone SIPs.

  A cutoff of sewage treatment funds for new facilities that will be major sources of HC.

- A cutoff of air program grants.

areas, largely disconnected from the severity of the areas' violations and having little likelihood of leading to effective corrective actions. In particular, the construction bans are inappropriate. They discourage the replacement of dirty obsolete equipment with new sources, including public projects that have modern air pollution controls. They displace workers in the construction and building trade groups. And despite that pain, they cannot achieve the purpose for which they are designed.

The reality is that in several areas, particularly Los Angeles, the NAAQS for ozone is not going to be attained -- not by December 31, 1987, not five years thereafter, not ten years thereafter, not by the year 2000, not within anyone's ability to see the horizon. The reality is that the statute commands an achievement the cost and pain of which exceeds its value to the public. The public has rejected that command. The statutory framework does not work.

It should quickly be emphasized that despite this failure, the statutory framework of the Clean Air Act has served this country well. Since its establishment in 1970, that framework has mobilized efforts that have brought great progress in the reduction of air pollution, the improvement of air quality, and the protection of people's health. Yet time moves on. One reaches a point where yesterday's solution will not solve tomorrow's problem. We have reached that point in this particular program.

It is time to take a fresh look at the realities of the situation. We need to reexamine the health and air quality values that actually are involved, the control strategies that are technologically and socially feasible, and the improvements that those strategies would produce. We need then to make considered decisions as to which strategies should be implemented and to revise the federal statute so that it will address those needs directly.

We should not simply avoid this question by merely extending the deadlines. Such extensions may relieve the political pressures of today, but they keep our heads in the sand. They continue, in effect, a statutory framework which is obsolete, without looking for the truth of why that framework does not work.

2. CONTROLS FOR THE SAKE OF CONTROL DE-COUPLED FROM ACHIEVEMENT OF THE AIR QUALITY STANDARDS ARE BURDENSOME AND NOT AN EFFECTIVE ATTAINMENT STRATEGY.

Any commitment by this Nation to solve the remaining tough ozone problems in our cities should be done through a comprehensive air quality planning and management approach. The process we recommend would be supported by realistic projections of air quality gains, unlike the state implementation plan process, which has too often based control decisions on inadequate data and on unrealistic assumptions. NEDA/CAAP supports an approach to resolve the remaining ozone problems that is based on realistic approaches and on recognition of how much progress has already been made and how difficult the solution will be for some of our cities. Such an approach cannot be solely based on additional air pollution requirements for industrial sources.

EPA has faced intransigent ozone problems for a long time in California, where ozone nonattainment is worse than anywhere else in the country. There, EPA has sought to use a program called the Reasonable Extra Efforts Program (REEP). The Agency would proceed with a similar program for the rest of the country, calling it the Sustained Progress Program (SSP), but for the constraint of the attainment dates in the Act. These programs call for measures such as controls on the private use of cars, higher failure rates in automobile inspection/maintenance programs, mandatory carpooling, tougher standards for existing plants that are already controlled, new standards for smaller sources that are not yet controlled (such as bakeries and dry cleaners), limits on consumer products using hydrocarbon propellants (which came into use to replace CFCs) and solvents, gasoline marketing controls and volatility standards, and new national automotive controls. In many respects, REEP and SPP are very similar to the elements of the air pollution control program set forth in S. 1351.

The problem is that transportation controls and other measures which intrude into the operation of small business and the general public's life style are very unpopular. After considerable political struggle, for example, California still only inspects vehicle emissions once every two years. As a result, the controls most likely to be imposed are those which apply to the industrial sources that are already heavily controlled. In nonattainment areas, new sources have to match the Lowest Achievable Emission Rate, and existing sources are subject to retrofit technology (known as Reasonable Available Control Technology or RACT). In some areas, RACT has been ratcheted down one or more times already, with each tightening producing less benefit at higher cost.

The general public, including the Congress, generally does not understand how great a reduction in emissions must be made to achieve attainment (using current methods of determination), nor what small steps toward that goal are represented by many of the costly and painful control strategies which are available. Yet the driving force of the Clean Air Act's legal requirements compels implementation of every control which does not generate overwhelming public objection. The effect of this situation is to disconnect decisionmaking on the imposition of controls for individual sources from the objective of NAAQS attainment, since that objective involves an altogether different set of factors and will not be achieved in any event. The practical effect on program administration is that it deteriorates into a system of control for the sake of control.

Control for control's sake in EPA's REEP and SPP program or in a legislative amendment to the Act will have several unfortunate effects. First, the programs do not prevent the imposition of construction bans, although areas which diligently adopt the new control measures may be able to avoid funds cutoffs. These sanctions stop the construction, modernization and expansion of new industrial facilities--which are far cleaner than older plants--and may prevent the construction of much-needed water pollution control facilities.

Second, new controls on small facilities (one targeted category is bakeries) will do little to actually improve air quality, but will impose severe hardship on the part of the economy that provides most new jobs, small business.

Third, tighter controls on existing facilities will also provide limited benefits (EPA estimates that if it imposed all of the new existing source controls that have been suggested, the greatest reduction in ambient ozone would be less than 4% of the existing emissions inventory), but will cost many times more than the controls imposed to date (in terms of dollars per ton of pollutant removed). This will be particularly damaging to some of our older industries and those facing stiff foreign competition.

Unless new control measures are tied to some achievable goal, they imply an endless ratcheting down of standards, with ever-increasing costs, and economic and social disruptions, with ever-decreasing air quality benefits.

NEDA/CAAP opposes an approach which calls for continuing additional controls without regard to attainment of the goals of the Act. It also opposes legislation which ignores economic development. The Clean Air Act should promote, not retard, industrial investments in the best interests of the economy and our nation's competitiveness in world markets. Furthermore, the Clean Air Act should not impede modernization of our existing industry or new construction.

3. WITH THE EXCEPTION OF CALIFORNIA, EXCEEDENCE OF THE OZONE STANDARD DOES NOT PRESENT SERIOUS OZONE HEALTH PROBLEMS.

It is true that there are a sizable number of counties and cities in the United States which exceed the health-based ozone ambient air quality standard of 0.12 ppm more than one hour per year. Many of these are areas which are major metropolitan population centers. In general, however, with the exception of Southern California where persistent ozone problems occur over several months a year, only small segments of these counties are exposed, and for very brief periods of time, to ozone standard violations. When we look at cities like Detroit, the Washington, D.C. metropolitan area, and Houston -- often cited as examples of the serious ozone problems we have, we find that even the highest recording air quality monitors measure exceedences of the standard only a fraction of 1% of the hours in a three-year period. (See Attachment A). And in these same areas, these air monitors demonstrate that for the majority of time air quality is far better than the standard (over 80% of the time ozone measurements are less than .05 ppm). These facts support a call for a large measure of practicality and restraint in the legislation considered by Congress and the regulations which EPA has proposed to implement. They do not support a rigid application of severe or highly onerous controls, particularly when such controls will have no material effect on the ability of an area to achieve attainment and will threaten the economic viability of our cities and industries.

Similarly, if one examines the numbers of people that are exposed when the ozone standard is exceeded by drawing isopleths around air monitors that measure exceedances, one also finds that the entire air quality control region is not exposed to ozone exceedences. Often only small portions of an area may be so exposed. Nonetheless, because of the way in which air quality control regions were established in the early seventies to conform to political and geographic boundaries, the notion persists that millions of people are exposed to harmful ozone levels for substantial periods of time. EPA's own data, when analyzed carefully, suggests this is not the case. Statements to the contrary do not contribute to reasoned debate and correction of the real problems that exist.

NEDA/CAAP is in no way advocating or suggesting relaxation of the health-based standard. We are, however, calling into question the seriousness of the nonattainment problem and the current methods for measuring nonattainment which appear to have suggested the need for rash regulatory and legislation initiatives. We believe that regulatory controls should be thoughtfully related to the health and environmental needs which actually exist.

4. A FRESH REVIEW IS ALSO NEEDED CONCERNING HOW ATTAINMENT AND NONATTAINMENT OF THE NAAQS ARE MEASURED UNDER THE CLEAN AIR ACT.

Before extraordinary and socially disruptive air pollution controls are considered, they should be based on a better understanding of the risks actually presented by marginal exceedences of the standards. NEDA/CAAP submits that the state implementation plans and controls are based on multiple layers of unrealistically conservative assumptions and unrealiable data. In addition, the need for controls are based on models that do not accurately predict ambient air quality improvements from given levels of emissions reductions. The frailty of the data on which we have placed our reliance for health protection clearly does not support the cost of this reliance in NEDA/CAAP's view.

It is also time for Congress and EPA to recognize the progress we have made in reducing the precursors of ozone, in actual reductions in ozone levels, and to mandate the development of statistically valid methodologies, including valid models and appropriate monitoring techniques, for:

- designating or redesignating nonattainment areas

- tracking air quality progress
- documenting population exposure to exceedences of NAAQS
- dealing with a typical meteorological events

5. CONGRESS MUST AMEND SECTION 163 OF THE ACT WHICH IS NO LONGER CONSISTENT WITH THE NAAQS FOR PARTICULATE MATTER.

New EPA rules replace the current standards for total suspended particulate matter (TSP) with a new indicator that includes only those particles that are 10 micrograms or smaller (PM-10). 2/ Publication of the final rulemaking this month will void the current NAAQS for TSP. As a result the NAAQS requirements will conflict with the statutory provisions for particulate matter in New PSD Areas.

Section 163 of the Clean Air Act's Prevention of Significant Deterioration (PSD) program establishes statutory increments for maximum allowable increases in concentrations of particulate matter over baseline concentrations in an attainment area. These increments are set forth in the Clean Air Act as total suspended particulate. EPA's position, as articulated in its June 7 press conference announcing the new PM-10 standard, is that it must continue the current PSD program for TSP and treat PM-10 as a "new pollutant" pursuant to section 166 of the Act,

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2/ EPA, in its Regulatory Impact Analysis, has estimated that the cost of meeting the PM 10 standards will be $1.9 billion. Economic impacts will fall principally on the iron and steel, smelting, electric utilities, cement, mining and quarrying, and grain and flour-milling sectors.

which directs EPA to establish specific new PSD measures for new pollutants for which NAAQS are promulgated.

In the interim EPA will require that owners or operators proposing new and modified sources in PSD areas evaluate their emissions for both the TSP and PM-10 NAAQS, despite the fact that the TSP NAAQS is now withdrawn. That is going to make a system that is already excessively complicated even more complicated. EPA will also impose a 15 ton per year (TPY) PM-10 threshold applicability requirement, triggering new source review under the PSD program, in contrast to the present 25 TPY requirement presently imposed for PSD review under the TSP standard.

The additional PM-10 analysis being imposed will require owners and operators of new sources and modifications to meet PSD requirements including:

(1) Protection of PSD increments for TSP (as currently required);

(2) Submission of ambient impact analysis, including the collection of PM-10 air monitoring data, protection of the new PM-10 NAAQS, and protection of PM-10 increments when established; and

(3) Installation of best available control technology (as always required for new or modified sources).

NEDA/CAAP Reaction

As a result of these regulatory changes, regulated industries are left with the anachronism of statutory PSD requirements for particulate matter, a duplicating framework of expensive existing and new preconstruction review requirements, and little or no state or federal PM-10 monitoring data (or for that matter technical guidance) on which to base preconstruction review. Furthermore, existing PM-10 sampling methods in current regulations require wholly different analyses be conducted for measuring compliance by existing sources.

Clearly, the duplicative requirements do not make sense. Congress must examine this program and rescind the PSD increment scheme that is statutorily imposed for TSP.

6. CONGRESS SHOULD REPEAL MOST PSD INCREMENTS AND INCREASE THRESHOLD APPLICABILITY REQUIREMENTS.

Moreover, NEDA/CAAP believes the time is overdue for Congress to reconsider the entire PSD program. While NEDA/CAAP supports BACT requirements as the way to spur modern clean facilities, it believes that the rest of the program represents a welter of bureaucratic requirements that cause long delays and create high monitoring, modeling and other paperwork costs without commensurate air quality benefits. Except in Class I and mandatory Class II areas, Congress should repeal the increment feature of the new source review requirements.

In 1986, NEDA/CAAP commissioned a study from Radian, an independent consultant which over the years has maintained a data base for EPA of all new source permits issued pursuant to CAA requirements. Radian's study for NEDA/CAAP confirms that emissions captured through the increment scheme and the rest of the PSD review are miniscule when compared to reductions yielded by application of BACT. (See Attachment B.)

It is particularly timely that Congress reexamine the PSD program now because a Federal Court has ordered EPA in Sierra Club v. Thomas, C 86-0971-WWS (N.D. Cal. 1987), to extend this inefficient New Source Review program to the "Set II" pollutants (ozone, carbon monoxide and nitrogen oxides). An increment system for the Set II pollutants makes no more sense than the current increment scheme. When Congress changes the PSD requirements, as NEDA/CAAP believes it will have to, it should repeal section 166 requiring increments for the Set II pollutants.

6. ADDITIONAL COMMENTS CONCERNING TOXIC AIR POLLUTANTS

Finally, Mr. Chairman, before concluding my testimony, I would like to briefly mention the subject of hazardous air pollutants, to cover the possibility that this Committee may at some point address that issue. In the event that Congress should review EPA's program for the control of hazardous air pollutants, NEDA/CAAP would wish to emphasize for the Committee's consideration the following points:

First, EPA's program has shown significant progress and should now be viewed as representing a meaningful approach to this issue.

Second, EPA's tightening controls on volatile organic compounds (VOCs) will reduce emissions of toxic substances, most of which are contained in this class.

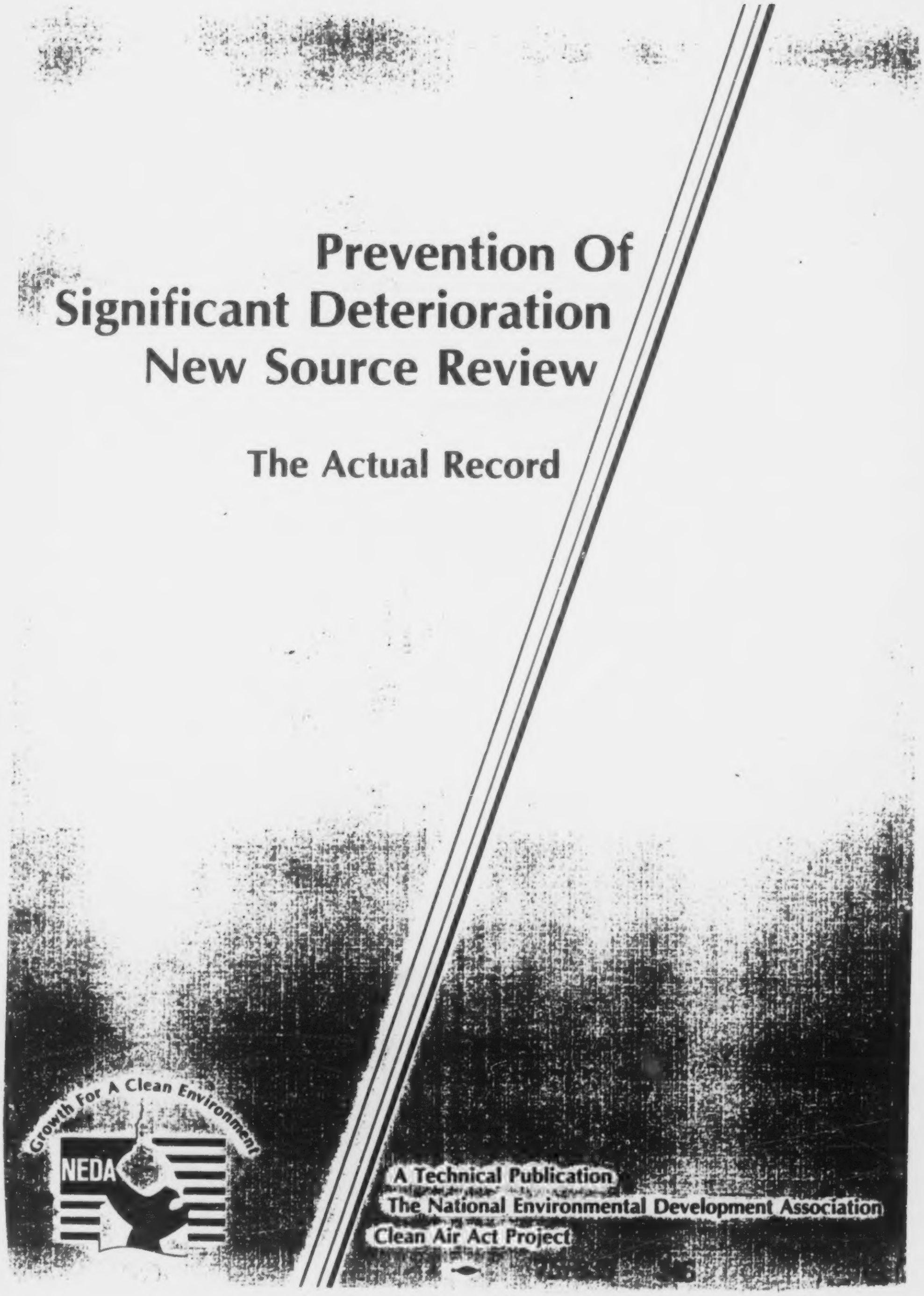
Third, EPA's newly promulgated controls on fine particulates will reduce inhalation of metals and toxic aerosols.

CONCLUSION

Any commitment by this Nation to solve the remaining tough ozone problems in our cities should be carried out through a comprehensive air quality planning and management approach. The process NEDA/CAAP recommends would be supported by realistic projections of air quality gains, unlike the current State Implementation Plan process, which has too often based control decisions on inadequate data and unrealistic assumptions. We support approaches to resolving the remaining ozone problems that are based on such realistic approaches and on recognition of how much progress we have already made and how difficult the solution will be for some of our cities.

The Clean Air Act excessively restricts and obstructs both new plant construction and the modernization and expansion of existing industrial facilities. Moreover, current regulatory efforts to achieve attainment in regions with severe ozone problems threaten to degenerate into imbalanced emphasis on requiring excessive retrofitting of controls on existing plants. The Clean Air Act should promote, not retard, industrial investment in the best interests of the environment, the economy and our Nation's competitiveness in world markets. It should not impede modernization of our existing industry or new construction which aids both environmental quality and the economy.

While we commend the sponsors of this legislation for endeavoring to take a broad view of all the opportunities to achieve further air emissions reductions and avoiding the temptation to impose controls only on the industrial sources, NEDA/CAAP hopes that this Subcommittee will not disregard other intrinsic problems inherent in the present law.



Prevention Of Significant Deterioration New Source Review

The Actual Record

Growth For A Clean Environment
NEDA

A Technical Publication
The National Environmental Development Association
Clean Air Act Project

NEDA
CAAP
CLEAN AIR ACT PROJECT

National Environmental Development Association • 1440 New York Avenue, NW Washington D C 20005 • (202) 638-1230

June 15, 1987

JOHN QUARLES, Project Chairman

About This Report

This report was commissioned by the National Environmental Development Association's Clean Air Act Project (NEDA/CAAP), a group of companies and labor unions concerned about problems in the Clean Air Act relating to new industrial growth.

The Clean Air Act is the most important environmental law affecting the siting and construction of new industrial facilities as well as modernizing or expanding existing facilities. These requirements have introduced confusion and uncertainties into the economic planning process. In many cases they have produced little or no improvement in air quality.

NEDA/CAAP is convinced that new growth leads to a cleaner environment, as newer, cleaner facilities replace older, higher polluting facilities. But the Clean Air Act regulatory program as it is now structured discourages this type of growth. The requirements of the Clean Air Act fall disproportionately on new industrial sources or sources wishing to expand operations. Several years ago, NEDA/CAAP analyzed the emissions contribution of new and expanding sources in nonattainment areas. The results of that study showed that in most cases, these sources accounted for less than five-tenths of one percent of the total emissions inventory in nonattainment areas, indicating that much of the regulatory machinery in the Clean Air Act is misplaced.

This study looks at the effectiveness of the Prevention of Significant Deterioration (PSD) program. It examines the actual record of new source applications under PSD in recent years. The results of this study indicate that changes can be made to the PSD program to make it simpler and more effective.

NEDA/CAAP offers this report to stimulate discussion about how our nation's clean air program is working in practice. In presenting this study, the members of NEDA/CAAP pledge their cooperation to provide additional information to shed new light on these important issues.

John Quarles, Chairman
CA1009LQP

NOTE: The following has been excerpted from this report. The report, in its entirety, has been retained in committee files.

1.0 INTRODUCTION AND EXECUTIVE SUMMARY OF FINDINGS

In September 1985, Radian Corporation submitted a report to EPA entitled "Analysis of New Source Review Permitting Experience - Part 2," wherein data extracted from 397 New Source Review (NSR)/Prevention of Significant Deterioration (PSD) permit files were analyzed and presented. This data base is significant to the analyses of New Source Review policies because it contains virtually all of the nation's PSD permits issued in the 42 month period from January 1981 through July 1984. Using this data base (the 1984 data base), two additional analyses were performed at the request of NEDA/CAAP and are documented in this report:

1. An examination of the case specific characteristics of permits where allowable PSD increments or NAAQS ceilings appeared to be threatened by the proposed construction; and
2. An examination of the degree to which PSD regulatory thresholds affect NSR emissions capture and PSD applicability, in general.

The major findings of this report are presented below. It is important to understand that the statistics presented below are based only on information found in PSD permit files. In cases where actions were taken by a source prior to submittal of the original PSD permit application, the nature and extent of such actions are not necessarily reflected in the permit file and thus, are not likely to be accounted for in the data presented below.

- In 86 PSD permits (out of 397 permits in the 1984 NSR/PSD data base), allowable air quality ceilings (PSD increments or NAAQS) were projected to be threatened by the proposed projects. Each case in this sample either projected associated air quality impacts to consume more than 90 percent of a PSD increment or

NAAQS, or corrective action was taken by the applicant after submittal of the original permit application to mitigate ambient impacts.

- Post-submittal "corrective actions" to reduce ambient impacts (either increment or NAAQS) were found to have been taken in 31 permits, or 7.8 percent of the 397 permits in the data base.
- In 12 cases, or 3 percent of the 397 permits, the source was ultimately required to apply emission controls more stringent than originally proposed as BACT.
- In one case, the location of an emission unit was changed to reduce ambient impacts.
- In 4 permits, the corrective action took the form of emission reductions elsewhere at the source.
- Increments were the driving force in 18 of the 31 permits (or 4.5 percent of the total data base) where corrective action was evidenced in the permit files. NAAQS were the driving force for the corrective action in 11 of the permits (or 2.8 percent of the data base). Reasons for corrective action in the remaining two cases are unknown.
- The SO_2 24-hour PSD increment appears to be the most frequently constraining air quality ceiling, affecting 28 permits out of the 86 permits where allowable air quality ceilings were projected to be threatened by proposed projects.
- Of the 86 permits where allowable air quality ceilings were projected to be threatened by the proposed projects, 41 permits had at least one emission unit subject to NSPS. Of these 41 permits, 21 (or 5.3 percent of the total data base) had BACT limitations more stringent than applicable NSPS. Emission reductions beyond NSPS for these 21 permits were 2,950 tons/year for PM, 53,800 tons/year for SO_2 (23,600 tons/year were associated with one source) and 4,900 tons/year for NO_x. Emission reductions beyond NSPS for the entire data base (397 permits) are 17,000, 148,000 and 11,100 for PM, SO_2 and NO_x, respectively. In

comparing the sample of 86 permits to the entire data base, the sample contributes 17 percent, 36 percent and 44 percent of emission reductions beyond NSPS for PM, SO_2 and NO_x, respectively.

- Allowable PSD increments solely limited allowable PM emissions in 6 of 16 permits where BACT was more stringent than NSPS. These 6 permits represent 24 percent (670 tons/year) of PM emission reductions beyond NSPS for this subset of permits.
- Allowable PSD increments solely limited allowable SO_2 emissions in 5 of 12 permits where BACT was more stringent than NSPS. These 5 permits represent 70 percent (37,700 tons/year) of SO_2 emission reductions beyond NSPS for this subset of permits.
- Allowable NAAQS solely limited allowable PM emissions in 2 of 16 permits where BACT was more stringent than NSPS. These 2 permits represent 13 percent (370 tons/year) of PM emission reductions beyond NSPS for this subset of permits.
- Allowable NAAQS solely limited allowable SO_2 emissions in 2 of 12 permits where BACT was more stringent than NSPS. These 2 permits represent 11 percent (5,900 tons/year) of SO_2 emission reductions beyond NSPS for this subset of permits.
- Both PSD increments and NAAQS limited PM emissions in 2 of 16 permits where BACT was more stringent than NSPS. These 2 permits represent 31 percent (875 tons/year) of PM emission reductions beyond NSPS for this subset of permits.
- Both PSD increments and NAAQS limited SO_2 emissions in 2 of 12 permits where BACT was more stringent than NSPS. These 2 permits represent 14 percent (7,470 tons/year) of SO_2 emission reductions beyond NSPS for this subset of permits.
- Other factors (non-air quality and unknown) limited PM emissions in 6 of 16 permits where BACT was more stringent than NSPS. These 6 permits represent 32 percent (890 tons/year) of PM emission reductions beyond NSPS for this subset of permits.

- Other factors (non-air quality and unknown) limited SO_2 emissions in 3 of 12 permits where BACT was more stringent than NSPS. These 3 permits represent 5 percent (2,780 tons/year) of SO_2 emission reductions beyond NSPS for this subset of permits.
- Other factors (non-air quality and unknown) limited NO_x emissions in 7 of 7 cases where BACT was more stringent than NSPS. These 7 permits represent 100 percent (4,890 tons/year) of NO_x emission reductions beyond NSPS for this subset of permits.

- If PSD applicability thresholds (or in other words, the emission levels at which PSD review is triggered) had been higher, fewer construction projects and their associated emissions would have been subject to PSD review. Although it is difficult to estimate the degrees to which these values might have changed (because of the complex decisions involved in project design), the following represent estimates, based on the distribution of the 397 PSD permits and associated emissions, of what might have happened if PSD applicability thresholds had been raised to either 500 tons/year or 1000 tons/year of pollutant emissions and all project design decisions remained the same:

At Hypothetical Applicability Thresholds of 500 Tons/Year -

- Eighty-one percent (81%) of the PSD permits for PM, representing twenty-nine percent (29%) of the PM emissions subject to PSD, may have avoided PSD review.
- Thirty-seven percent (37%) of the PSD permits for SO_2, representing two percent (2%) of the SO_2 emissions subject to PSD, may have avoided PSD review.
- Fifty-two percent (52%) of the PSD permits for NO_x, representing five percent (5%) of the NO_x emissions subject to PSD, may have avoided PSD review.
- Fifty-three percent (53%) of the PSD permits for CO, representing eight percent (8%) of the CO emissions subject to PSD, may have avoided PSD review.

- Seventy-eight percent (78%) of the PSD permits for VOC, representing thirty percent (30%) of VOC emissions subject to PSD, may have avoided PSD review.
- Ninety-six percent (96%) of the PSD permits for non-criteria pollutants and their emissions may have avoided PSD review.

At Hypothetical Applicability Thresholds of 1000 Tons/Year -

- Eighty-nine percent (89%) of the PSD permits for PM, representing forty-four percent (44%) of the PM emissions subject to PSD, may have avoided PSD review.
- Fifty-six percent (56%) of the PSD permits for SO_2, representing seven percent (7%) of the SO_2 emissions subject to PSD, may have avoided PSD review.
- Seventy percent (70%) of the PSD permits for NO_x, representing ten percent (10%) of the NO_x emissions subject to PSD, may have avoided PSD review.
- Sixty-six percent (66%) of the PSD permits for CO, representing fourteen percent (14%) of the CO emissions subject to PSD, may have avoided PSD review.
- Ninety-one percent (91%) of the PSD permits for VOC, representing fifty-three percent (53%) of the VOC emissions subject to PSD, may have avoided PSD review.
- Ninety-seven percent (97%) of the PSD permits for non-criteria pollutants and their emissions may have avoided PSD review.

The PSD permits and criteria pollutant emissions not avoiding PSD review would have been comprised largely of those associated with utility power plants and other large sources which, for the most part, would have been unaffected at either hypothetical threshold. However, it appears that applicability thresholds can reasonably be restructured to reduce significantly the number of sources subject to PSD review and still capture a majority of criteria pollutant emissions.

Testimony of Richard E. Ayres
Chairman, National Clean Air Coalition
before the
United States Senate Committee on Environment & Public Works
Subcommittee on Environmental Pollution

June 16, 1987

Chairman Mitchell, members of the Subcommittee, I am delighted to be here today to testify on behalf of the dozens of major national and local organizations who are members of the National Clean Air Coalition.

Mr. Chairman, in 1970, under the leadership of your predecessor Sen. Muskie, this nation dedicated itself to protecting the health of the most vulnerable of its citizens -- the young, the elderly, the sick -- from the effects of air pollution. Since then, we have lost much of that momentum. Consciously, through policies adopted at EPA, and unconsciously, through Congressional inability to act on clean air legislation, we have fallen behind -- to the point where the most recent medical evidence indicates that our basic health standards are not adequate to protect fully the public health.

The approach of the 1987 deadline for achieving federal health standards across the country has provided a challenge to you and your colleagues to fashion a revised clean air program that will provide Americans the healthful air quality they have repeatedly demanded from their government.

The task that faces this Congress can be described succinctly. Seventeen years ago the Congress directed that the federal and State governments work together to clean up the atmosphere of our polluted metropolitan areas so that Americans everywhere should have healthful air to breathe. While great progress has been made, air quality remains unhealthy in some 70 metropolitan areas, inhabited by more than 100 million Americans. Your job is to strengthen the existing structure of the Clean Air Act to complete the task begun by the 91st Congress.

Not everyone is prepared to take up this challenge. As the deadline approaches, there will be those who urge that you solve the non-attainment problem magically by changing the health standards and declaring the air clean already. Others, such as the EPA, seem paralyzed by the difficulties, real or imagined, of redeeming the Congressional promise of clean air.

Mr. Chairman, S. 1351 is an important first step towards that strengthening. There is much to applaud in the bill. On the other hand, there are also some fundamental flaws, particularly with respect to the State Implementation Plan requirements, which must be corrected if the bill is to reinvigorate the program to achieve healthful air quality.

In its basic structure, the bill is a creative response to the present problem. It affirms the most basic premise that the appropriate response to continuing nonattainment is further controls on pollution.

The bill recognizes the regional nature of the smog problem and provides a four part response:

- tighter controls on new motor vehicles, with strengthened requirements to insure that actual in-use performance approximates that of the handful of cars EPA uses in its certification procedure;
- creation of multi-state ozone control regions designed to provide a means for cooperative state control actions;
- requiring the use of reasonably available control technology and inspection/maintenance throughout such regions; and
- baseline federal requirements for control of certain nationally marketed sources of pollution, such as solvents, paints, pesticides, and traffic marking coding, as a foundation for regionwide state efforts.[1]

The bill will take important new steps to assure that motor vehicles maintain high pollution control performance on the street, where it counts. In a time when manufacturers are touting longer and longer basic warranties, for example, consumers have a right to expect that emission controls will last the full useful life of the vehicle, and that manufacturers will repair them if they fail. The bill would remedy this and other such problems, and the National Clean Air Coalition strongly supports all of the "in-use compliance" provisions.

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[1] We believe these federal technology requirements should be designed to be technology-forcing. We are therefore disturbed to see that the proposed statutory language would permit EPA to write less demanding standards.

We also support the improvements in statutory emission controls for new motor vehicles contained in the bill. For gasoline automobiles, these amendments will move the whole new car fleet towards the performance attained already by many cars.[2] The standards for diesel cars would match what California has already put on the books.

We support the bill's control program for heavy-duty trucks and buses, particularly the decision to eliminate averaging as a means of compliance.[3] It is important to establish statutory standards for these vehicles to prevent the kind of backsliding which has characterized this program.

We also applaud the proposal to require on-board hydrocarbon controls, in tandem with Stage II and Reid Vapor Pressure requirements. We are concerned that by establishing the statutory concept of an "ozone season," the Congress would invite a process of narrowing the applicability of the program unduly.

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[2] We applaud the bill's proposal to regulate emissions from motorcycles. We would recommend that the Committee consider controlling emissions from other presently uncontrolled engines, such as those of construction equipment.

[3] An oversight in the bill is that it does not incorporate the 1991 EPA interim standard for particulates from diesel trucks, which means that it would allow these vehicles to go unregulated until 1994. This oversight should be corrected at mark-up.

Unfortunately, the bill does not require light-duty trucks to meet the same emissions standards as automobiles. Most of the vehicles in this rapidly-growing class share engines and other components with passenger cars, and there seems little reason to treat them differently.

Having indicated the strengths of S. 1351 let me now turn to its very serious weaknesses. These largely relate to the commitments states must make in order to obtain extensions to the deadline for attaining health standards.

The bill creates two classes of nonattainment areas. One class may obtain an extension of the attainment deadline for up to five years in return for committing to adopt certain measures. A second, presumably more polluted class, may escape from deadlines altogether for what appear, on the face of the bill, to be commitments to an enhanced control program. Part of this enhanced program is a requirement that the area attain a specified percentage reduction in emissions each year of up to 8% of the previous year's emissions.

It appears that the initial intention was to require each nonattainment area that could not show it would meet health standards within five years to commit to the additional measures of the enhanced program.

As written, however, a "downwind" exemption in the bill (§101(c), proposed Clean Air Act §172(e)(1)(C)) would allow most localities that do not demonstrate attainment within five years to avoid the enhanced program. It would also encourage areas that could attain in five years to escape the deadline by claiming that they could not.

To escape the enhanced program, a locality would only have to "show" (using air quality modelling) that it could meet the health standards within 10 years if all other areas carried out the program required of them (including the enhanced program, where applicable).

The "downwind" exemption sets up a giant finger-pointing exercise that would defeat the whole enhanced control program. Every locality would be able to escape the enhanced control program by using the malleable technique of air quality modelling to assert that if others just do their jobs, there is no need for additional control here. Each locality would be allowed to do less on the basis of an assumption that others would do more. In the end, none would have done what was necessary, and the air over the whole region would remain polluted. It is as if European countries were to argue it was unnecessary to control their use of chlorofluorocarbons because they could assume the United States would carry the burden of CFC control.

Earlier I noted that one of the positive features of S. 1351 was its recognition that the smog problem is a regional one. Unfortunately, the "downwind" exemption would apply this recognition in a perverse way. Rather than requiring all to contribute to solving a mutual problem, it would encourage each to blame a shared problem on all the others.

If the "downwind" exemption were eliminated, there would still remain problems related to the issue of deadlines.

First, the bill abolishes deadlines for the most polluted areas of the country. For many years the National Clean Air Coalition has argued strongly that deadlines are necessary to assure that public officials are accountable for progress on air pollution control. The fact that we are all here today is a tribute to the wisdom of previous Congresses in recognizing this point. We do not believe the Congress should adopt open-ended clean air legislation.

Second, the bill allows any area that shows it needs more than five years to attain the health standards to have at least 10 years to complete the job, even if only a few days more than five years are needed.

This happens, because, as I mentioned earlier, the bill provides that areas which cannot attain the standards within five years must adopt an enhanced program in order to escape the five-year deadline. As part of the enhanced program, the locality must commit to achieving a percentage reduction in the previous year's areawide emissions of 8% per year, or less if less is sufficient to achieve the health standards in 10 years.

In effect, this means that an 8% reduction per year will be required in the most polluted areas, but less polluted areas will be allowed to do less. If the health of people in Baltimore, New York or Houston is as valuable as that of the citizens of Los Angeles, why shouldn't those cities be required to move as quickly to protect their people?

Third, metropolitan areas that show they can attain the standards within five years are entitled, under the bill, to take as much as five years to put into place the measures they need. Section 101(c) of the bill lists additional control measures that must be adopted by such areas, but provides no date by which they must be adopted, short of the final 1992 deadline. We see little reason why localities should be give five more year to implement what should be little more than a mid-course correction in these polluted areas.

We are also extremely disturbed by the treatment given to resource recovery facilities in S. 1351. Incinerators are the fastest growing source of pollution within our metropolitan areas, yet the bill allows air pollution control officials to treat them as if they are not polluting the urban air. Under the bill, officials in nonattainment areas can treat the pollution from these gigantic polluters as if it didn't exist. The locality can claim it is meeting its obligation to achieve health standards and avoid sanctions, while in reality people continue to breathe unhealthy air. Keeping separate books is unacceptable here as elsewhere in government; and no major source of pollution should be above the law.

We understand that a separate bill is being considered that would relate to technological controls on incinerators. We urge that any such bill incorporate requirements for developing recycling and other means of avoiding the creation of solid waste, as well as emission controls for the facilities themselves. We will be happy to work with the staff to formulate such legislation, which we regard as very necessary.

Finally, we applaud the bill's intention to eliminate the use of the bubble concept in nonattainment areas. But we see problems with the language of the bill. Again, we would be pleased to work with the Committee staff to correct these .

problems. The bubble policy, created by pollution accountants, resembles more and more a creation of Ivan Boesky.

As is apparent, these problems are very serious ones, which go to the heart of the bill. Some seem perhaps to be unintended results of attempts to draft provisions aimed at particular localities. Others seem more fundamental. We wish to urge in the strongest way that these problems be addressed in the coming mark-up, so that the bill can fulfill its potential to become a worthy successor to those that have been adopted in this Committee in the past.

STATEMENT OF

MR. JAMES N. SULLIVAN

ON BEHALF OF THE
AMERICAN PETROLEUM INSTITUTE

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

U.S. SENATE

ON

NATIONWIDE OZONE NONATTAINMENT

ACID RAIN

LOW SULFUR DIESEL FUELS

WASHINGTON, D.C.
JUNE 16, 1987

NOTE: Attachments to this statement have been retained in committee files.

COMMENTS ON

NATIONAL OZONE NONATTAINMENT

ACID RAIN AND LOW SULFUR DIESEL FUELS

BY THE AMERICAN PETROLEUM INSTITUTE

JUNE 16, 1987

Good morning Mr. Chairman. My name is James N. Sullivan, I am the Vice President, Technology and Environmental Affairs for Chevron Corporation, speaking today on behlaf of the American Petroleum Institute. Also present with me is Mr. Michael Barr, a Partner in the law firm of Pillsbury, Madison and Sutro, San Francisco, representing API's Ozone Nonattainment Task Force.

API is a national trade association representing over 200 companies and 5000 individual members. API's members are engaged in all aspects of the petroleum industry including exploration, production, refining, transportation and marketing. I am here today to present the American Petroleum Institute's views on ozone nonattainment, acid rain and low sulfur diesel fuels and what the country should do about them.

As an overview of my presentation, I'd like to say that our country has made, and will continue to make, progress in achieving clean air. We need to recognize the progress we've made. Next, we need to strive to understand as best we can the nature of our remaining ozone nonattainment problems, including the relationship between emissions and their environmental effects. Based on this fuller understanding, we need to work together to develop a plan that achieves necessary environmental improvement through implementation of the most cost-effective controls. We strongly believe that this management approach to the remaining ozone nonattainment problems will result in the most appropriate solutions.

During the period 1975-1984, the U.S. petroleum industry spent over $17 billion to control air pollution, including ozone. Other industries have also spent large sums. Yet, the nation still has not fully achieved its air pollution goals. And we are now facing the December 31, 1987 attainment date under the Clean Air Act.

To say the least, this situation is frustrating to you, to our industry, to environmental groups and to the public. Yet, the next round of choices will be difficult and must be made carefully. We realize that, as the hydrocarbon production and distribution industry, we will have to do more. We all must also recognize our industry's and our nation's resources are limited. Our goal is to see that the new control strategies to be adopted will provide the greatest improvement in air quality using these resources in the most efficient manner.

Our first conclusion as we re-examine the ozone nonattainment problem is that EPA's report card for progress needs to be changed. Under EPA's approach, areas are either "A's" or "F's", that is, attainment or nonattainment. For most large communities in our nation, that has meant 17 years of "F's". There is clearly a need for a better system--one with "B's", "C's" and "D's"--to measure the progress we have made and will make.

EPA measures attainment and nonattainment by collecting and reviewing maximum hourly readings from ozone monitors each day. The state then gathers all the hourly monitor readings for a three-year period within an area. If four readings on four different days from any one monitor are above the standard, the entire metropolitan (or larger) area is classified as out of attainment.

EPA then uses the four highest readings to compute a "design value" for each nonattainment area which are the levels you see in most nonattainment reports. The design value is computed from the highest measurements of the highest single monitor.

The implication is that the design value represents the air quality for the entire air region and that everyone there breathes bad air all of the time. In fact, actual ozone levels may be much lower for the remainder of the year, and for the people living in the rest of the area. Under this EPA approach, currently 76 areas are considered out of attainment by EPA.

A case example from my home area may help illustrate our point. (See attachment #1.) We have examined the San Francisco urban airshed monitoring data to find the actual number of hours that ozone levels were above the standard. Those hours were then compared to the number of people in the areas where monitors recorded levels above the standard, i.e., exceedances.

It turns out that the number of hours of exceedances declined from 194 in 1969 to 29 in 1983 to 3 hours in 1986. In addition, fewer monitors measured exceedences, which means fewer people were exposed. This decline in total hours of exposure and numbers of people potentially exposed between 1969 and 1986, yielded a 99 percent reduction in potential population exposure to ozone exceedances in the 17 years since the Clean Air Act was enacted. For our planning purposes, it is also important that the general, area-wide ozone nonattainment problem in the Bay Area in 1969 has changed dramatically to a localized ozone nonattainment problem in 1986. These results are especially striking when you consider that population, vehicle use and the economy have grown considerably in the Bay Area over the same time period. The nonattainment measures that EPA uses do not reflect these dramatic changes or the substantial progress we have made.

API commissioned a "quick-look" study of several major metropolitan areas across the country. We have provided that study to your committee today. The study is based solely on EPA-supplied data. (Attachment #2.)

What the API study shows is that many areas which now receive failing ozone grades should be given extra credit:

- In the New York, New Jersey, Connecticut

Consolidated Metropolitan Statistical Area (CMSA), (EPA Ranking #4), data for all 17 monitors in the area show compliance with the ozone standard 99.64 percent of the time. The monitor showing the highest readings is located at the Coast Guard lighthouse near Stratford, Connecticut. That monitor does not reflect the entire area's air quality and using it as an indicator overstates the ozone problem. Yet, even that monitor shows considerable progress since 1983 and, by 1985, was registering ozone compliance more than 99 percent of the time. Recent ozone improvement trends in the New Jersey part of that CMSA show ozone standard compliance more than 99.9 percent of the time.

- Detroit (EPA Ranking #55) is another area showing ozone standard compliance more than 99.9 percent of the time. Detroit is a good example of an area where a single monitor can put the entire area out of compliance. That single monitor is located about 50 miles northeast of Detroit near Port Huron, Michigan. The other 7 monitors in the Detroit area meet the ozone standard.
- The Washington, D.C., Virginia, Maryland area (EPA Ranking #28) also meets the ozone standard 99.9 percent of the time over the five year period from 1981-1985. However, the highest monitor in the area (located at the Montgomery Ward Store on Arlington Boulevard, Seven Corners, Virginia) jumped to almost one percent noncompliance in 1983. Temperature data show a corresponding jump in 1983. In fact, 1983 was one of the hottest summers in the area in 20 years. The graphs in the API study demonstrate that an area's ability to attain the ozone standard is highly dependent on the weather.
- Houston (EPA Ranking #2), considered to be one of the worst ozone nonattainment areas of the country, attains the ozone standard about 99.5 percent of the

> time. The Houston data show how the use of extreme values to determine whether an area meets the ozone standard distorts the evaluation of ozone air quality. The Houston "design value" was computed from data found only at the top 0.05 percent of all hours monitored at the worst-case monitor in the area. By contrast, over 85 percent of the monitored hours in the Houston area show ozone values less than half the ozone standard.

This and similar information for the rest of EPA's 76 nonattainment areas has tremendous implications for air planning in 1987.

We believe this clearer and more detailed description of the magnitude of the ozone nonattainment problem makes it much more manageable. A prudent management plan for 1987 and beyond should abandon the attainment/nonattainment -- the "A" or "F" repord card -- decisions in favor of a more comprehensive measure of progress.

Many localities have established extensive control requirements only to find, now, that they are being asked to go back to the drawing board and seek further, general emission reductions. This demand is based on the assumption that any hydrocarbon emission reductions anywhere within the area will bring sufficient and appropriate reductions in ozone levels at the nonattainment monitor(s). However, the problem is clearly more complex. Other factors, such as geographical location, weather patterns, and upwind transport of ozone and its precursors can affect a monitor's ozone levels.

State air quality management problems are further exacerbated because the nation has had an incomplete knowledge of all emissions sources. All too often, therefore, the states have had to rely on over-simplified air quality models and incomplete emission data as a basis for developing their emission control strategies. Despite questionable scientific validity, this information has been the basis for the majority of control requirements imposed on business and industry. Use of better inventories and better models are now needed to allow regulators to make wise choices about which emission reductions will provide the maximum air quality benefit at the least cost to society.

Again, my home area, San Francisco, provides a good example of a more effective approach. The Bay Area Air Quality Management District (BAAQMD) compiled a comprehensive list of emission reduction controls. The air quality benefits of each of these were estimated by airshed modeling. Attachment #3 provides the list of selected controls based on cost per air quality improvement. This is a time-consuming and expensive task, but the common understanding and equity it brings to the process had made it well worth the effort. The BAAQMD is now updating and revising its list for purposes of the 1987 Nonattainment Area Plan. Because the nature of the Bay Area's ozone nonattainment problem has changed from a general area-wide problem (1969) to a much more localized problem (1986), the new control measure/air quality benefit schedule is expected to differ markedly from the prior schedule. It will point towards the most efficient solutions to the ozone problem remaining in the Bay Area in 1987, rather than to our previous problem or to some oversimplified problem indicated by EPA's faulty "design value" approach.

As an industry, we are generally concerned about the persistent ozone nonattainment issue, the growing cost of emission controls, and the sometimes questionable benefits realized from very large expenditures. But, quite naturally, we are specifically concerned about the impact that additional regulatory burdens will have on the petroleum industry. Recent government actions in other areas have cost our industry over $3.2 billion annually:

- Phasedown of lead content in gasoline--$500 million/annually
- Tax reform--$2.0 billion/annually
- Superfund tax increase--$700 million/annually.

In addition, over the past year there was a $50 billion annual revenue loss to the petroleum industry from the collapse in crude oil prices. This led in turn to a concomitant decline in drilling rig operations and the search for new oil. All of this has led to a loss of jobs. It also has much more serious longer-term implications for the energy security of the nation. Additional regulatory controls without air quality benefits will make the situation worse. Controls must not be for control sake, but must provide specific improvements in our nation's air quality.

Recommendations

Where do we go from here?

Our nation is seriously concerned about the need to increase our ability to compete in the world economy. Despite this necessity, U.S. industry will be forced to spend even more, to realize smaller incremental improvements in air quality--all for a problem whose scope may be far smaller in magnitude than generally publicized or perceived and whose solution may be far different than the shotgun solutions so far proposed by EPA.

API wishes to recommend a series of steps that the nation should take to understand how much progress has already been made in cleaning up our air and to choose strategies that will be most productive and cost-effective in improving air quality:

(1) First, we recommend the adoption of a comprehensive and realistic measure of air quality. Continued reliance on the EPA "design value" concept erroneously assumes that the ozone situation is either black or white: an area is either in attainment or out of attainment. "A's" and "F's" do not help air planners. It should be recognized that communities are improving air quality if the number, intensity or extent of exceedances declines. A better alternative is to measure improvement in terms of a reduction in population exposure. This measure has many advantages, the primary one being that it will help localities target

control actions to provide the greatest benefits in public health.

(2) Second, the monitoring and modelling systems should be examined to assess their accuracy in portraying overall ozone levels. A recent GAO report on air quality models pointed out substantial error rates in many of the simple models. However, current sophisticated models are available, such as the Urban Airshed Model, which will allow more reliable predictions of improvement in air quality. However, these models require significant resources to initiate and use. We believe these costs are small compared to the cost of potential controls.

Improved monitoring systems should be designed to better portray overall air quality, and sophisticated models should be employed which provide far greater assurance that the suggested control options will produce the desired improvements. As noted earlier, many localities have sought emissions reductions to improve air quality based on out-of-date model projections, only to find that air chemistry or other uncontrollable events limited the expected air quality improvements. The state and local districts will require additional resources to utilize the state-of-the-art modeling capability which can lead to more informed decisions.

(3) Third, a complete and updated emissions inventory should be developed as part of the State Implementation Plans (SIPs) evaluation. EPA and state governments need to quantify emissions from all sources and determine their contribution to ozone nonattainment before more controls are imposed or construction is banned.

(4) Fourth, EPA and state governments should undertake an objective evaluation of the existing SIPs. Such review should include ample provisions for public input. Each

locality has a unique set of geographical conditions, weather patterns and other factors that affect how well various control strategies will perform. Let the nation find which efforts have been the most productive in improving air quality. We all need to know what worked and what didn't. More importantly, we need to know why they did or did not work in order to target future resources on efforts that are most likely to be successful, and to avoid costly mistakes. Although this necessary review will take time, our data analysis suggests the nonattainment problem is less urgent then EPA suggests. In view of the extreme cost and life-style disruptions that some project as necessary to reach attainment, a timely reconsideration of implementation policy is required before draconian measures are proposed.

(5) Fifth, we recommend adopting cost-effectiveness techniques to help decision-makers select appropriate controls in the future. Again, the focus should be on the cost to improve air qualtiy, not the cost to reduce emissions. Such an approach can help society compare the costs of controls to the air quality benefits they are likely to realize. Without such an analytical effort, we risk wasting the nation's increasingly scarce resources.

Several hydrocarbon control options have been suggested, some of which would specifically target the petroleum industry. For instance, the bill introduced last week, S.1351 contains a provision that the Reid Vapor Pressure of motor gasoline, which is a measure of the volatility of motor gasoline, shall not exceed 9.0 psi (pounds per square inch). A significant reduction in gasoline vapor pressure to control ozone is neither prudent nor necessary. A reduction in vapor pressure would require removal of butane--about one percent reduction in gasoline volume for every half pound reduction in RVP--from gasoline. Not only will additional product be required to replace the constituent removed, but also additional octane improvers will be necessary because butane, at about 91-92 octane blending value, is a significant octane booster. Such controls could, therefore, needlessly increase demand for high cost product imports to maintain the same volume and grades of gasoline. RVP reduction costs can be substantial. A reduction in gasoline volatility to 9.0 psi nationwide for four summer months could cost refiners as much as $2 billion from 1988 through 1990. These estimates are based on the Bonner and Moore Study (dated February 25, 1986) of refining costs commissioned by EPA.

API recommends adoption and enforcement of the volatility standards established by the American Society of Testing and Materials through national consensus with input from the oil and auto industry. The ASTM standard defines volatility levels to ensure engine starting, warm-up, acceleration and to avoid vapor lock. ASTM specification provide a month-by-month schedule of gasoline specifications tailored to local climate and altitude.

Stage II control of refueling emissions is another hydrocarbon control technology, particularly adverse consequences for the industry, and its customers. Stage II controls costs on average $24,000 per station with maintenance costs of approximately $2,000 per year. These costs are particularly burdensome to small business station operators.

Although, ozone nonattainment is the oil industry's primary concern here today, our views on acid rain are very similar. That is, the response should be commensurate with the degree of the problem and the effectiveness of the solution. For acid rain, this means a realistic assessment of the effects acidic deposition and better technical tools to help target control options.

As you are aware, emissions of nitrogen oxide and sulfur oxide are both discussed as potential contributors to lake acidification. The National Academy of Sciences has found an association between sulfur oxides and environmental risk in sensitive areas in the Northeast. At the National Acid Precipitation Assessment Program (NAPAP) review meeting last month, quantifying the environmental effects of nitrogen oxide emissions and deposition was identified as a major agenda item for upcoming research. Since nitrogen oxide emissions have continually increased over the last several decades, we support the NAPAP effort to quantify the level at which ecological effects from nitrogen oxide acidic deposition become important. We believe this basic information should be an important building block for designing cost-effective control strategies.

Sulfur oxide emission controls may eventually be needed to protect sensitive areas of our environment from acidic deposition. The recent nationwide lake surveys showed no widespread lake acidification. This, coupled with the 10 percent reduction in sulfur oxide emissions over the last five years, suggest we have time to plan a thoughtful course for control. We believe it is prudent to await the findings of NAPAP, the final results of which should be available in 1990.

If needed to protect sensitive areas from acidic depostion, the most cost-effective controls should be selected, that is, the controls which provide the greatest reduction in sulfate depostion at the least cost (in sensitive areas). For example, reducing diesel sulfur content throughout the United States to 0.05 percent sulfur could cost the United States petroleum industry over $3.2 billion in capital costs and another $1.2 billion/year in operating costs. This could raise the cost for diesel fuel as much as 8 cents/gallon. Yet, this solution will reduce total sulfur oxides emissions by less than one percent and have no measurable change in acid deposition in most sensitive locations.

Our recommendations for acid rain parallel those for ozone: Assessment of quantitative threshold levels of environmental damage; further identification of sensitive receptor areas; identification of all sources to determine their contribution in these critical receptor areas; improved modeling; and, finally adopting cost-effectiveness techniques to assess control strategies.

Summary

In summary, we recognize that our industry must be part of the solution to air quality issues. For ozone, state and local governments have made, and are continuing to make, substantial progress in achieving our air quality goals. Additional controls should provide the greatest possible improvement in air quality at the least cost. For acid rain, we should focus our resources on protecting sensitive receptor areas from levels of pollutants demonstrated to cause environmental damage. Taking the time to assess what we know about the problems, and then utilizing the best scientific understanding available, is a commitment both to clean air and to the effective use of our nation's resources.

Chevron Corporation
225 Bush Street, San Francisco, California 94104-4289

J.N. Sullivan
Vice President

June 24, 1987

The Honorable George Mitchell
Chairman, Environmental Protection Subcommittee
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Senator Mitchell:

At a recent Subcommittee hearing, testimony was presented about Chevron's Richmond, California facilities that we believe contained factual errors. We offer the following comments for the Committee's consideration in order to clarify the situation, and would appreciate your making this letter part of the official hearing record.

Richmond Air Toxics Monitoring

The Bay Area Air Quality Management District (BAAQMD) operates and maintains an air toxics monitoring station approximately one mile east of the Chevron complex in Richmond (13th and Costa Streets). This monitoring station is downwind the majority of the time. This station measured an annual mean of 2.14 ppb for benzene as opposed to the statewide mean of 2.84 ppb in 1985.

Contra Costa County Health Studies

A study by Dr. Donald Austin, funded by the EPA, concluded that smoking patterns were the primary cause of the higher lung cancer rates in the industrialized areas of Contra Costa County. To our knowledge there have been no credible studies that conclude the cancer rate (leukemia) is unusually high. While cancer is the second leading cause of death among children under 15, and leukemia is the most prevalent form of cancer, Contra Costa County only ranked fifth out of the nine Bay Area counties in leukemia death rate over the period of 1970-1979. Furthermore, Chevron employees at both the Ortho Agricultural Chemicals plant and the refinery have been found to have cancer rates lower than the average U.S. population.

Benzene Emissions

It should again be noted that the downwind monitor from our facilities finds benzene concentrations below the statewide average. Most scientists will agree that benzene at high enough doses may cause leukemia. However, more than 93% of the benzene emissions in the state are from motor vehicle exhaust. Indeed, the state of California's air toxics control program has focused on refueling emissions as its initial control strategy for benzene. This decision was made after extensive assessments of the health risks posed by all types of activities. We believe the recent approach by the California Air Resources

Board will provide the most benefit to the public health. Suggested control strategies should be (and in fact, have been) submitted to them for consideration in their deliberations.

Ortho Agricultural Chemical Plant Emissions

All Chevron hydrocarbon emissions are permitted by the Bay Area Air Quality Management District. Methylene chloride emissions are substantially lower than permit requirements. An assessment of the risks based on conservative (health protective) ground level concentrations and conservative risk assessments (including systemic chronic toxicity effects) shows remote risks from these emissions.

Ortho Incinerator

The Ortho incinerator is currently operating in compliance with all applicable laws and regulations. It is operating under an interim RCRA permit while our completed application awaits a regulatory review for a final permit. Indeed, less than 10% of all incinerators operating in the country have received a final permit.

Extensive testing has shown no dioxins are formed in the Richmond incinerator. This is not surprising, given the composition of the feed and the conditions in the firebox.

Waste Reduction

Industry does have waste reduction plans as required by the 1984 Reauthorization of RCRA. Moreover, Chevron's SMART program (Save Money And Reduce Toxics) is an overall corporate program aimed at minimizing wastes in all Chevron facilities and activities. We are proud of this program and would be happy to share the details with you or your committee.

In summary, we are proud of our environmental record and we continually strive to improve it. As members of the community, it is in our best interest to continue to work to minimize unreasonable risks posed by our facilities. Thank you for the opportunity to set forth the facts.

Sincerely,

cc: Subcommittee Members

American Petroleum Institute
1220 L Street, Northwest
Washington, D.C. 20005
202-682-8100

Charles J. DiBona
President

June 30, 1987

The Honorable
George J. Mitchell
United States Senate
Washington, DC 20510

Dear Senator Mitchell:

During the American Petroleum Institute's testimony before your committee on June 16, 1987, our witness, James Sullivan of Chevron Corporation, addressed some broad issues concerning ozone nonattainment. Because of the time limits imposed on the oral testimony and the short time between the introduction of the bill and the hearing, Mr. Sullivan requested the opportunity to submit detailed comments on S.1351 at a later time. The Chair graciously granted the request. Enclosed are our detailed comments on S.1351.

We appreciate your willingness to receive these comments at this time.

Sincerely,

Charles J DiBona

cc: Members, Senate Committee on Environment and Public Works

Introduction

The Clean Air Standards Attainment Act of 1987, S. 1351, is intended to extend the Clean Air Act (CAA) nonattainment deadlines for ozone and carbon monoxide while imposing a sequence of ever increasing emissions control requirements on existing and new stationary and mobile sources. In particular, the bill would impose stringent hydrocarbon and NO_x control measures and impose a considerable cost burden on the petroleum industry without regard for the effectiveness in improving air quality.

Before continuing the same time worn approaches, we believe it is imperative to undertake an evaluation of the past strategy. EPA needs to know what has worked, what didn't work and why. It is critical that emissions inventories be updated and that such updates include emissions from all sources which contribute to the ozone problem. Such an effort will allow regulators to target future efforts on controls which are likely to be effective and to avoid costly mistakes. The need to identify emissions sources and effective reduction strategies becomes even more pressing when one considers the impact of additional controls.

It is our general conviction that we need a better assessment of the actual air quality to which our population is exposed and of the factors which have allowed us to improve it as much as we have in recent years before we implement Draconian measures with such potentially severe economic impacts as are suggested in S.1351. In addition, however, we have several specific concerns with the bill. These concerns are detailed in the body of this document; however, they are summarized below.

o Outer Continental Shelf

API is very concerned that the OCSLA is to be amended by this ozone legislation. It is critical to the unimpeded flow of trade into and out of our ports to have a single set of regulations and a single federal authority controlling the use of harbors and the waters over the OCS.

o Reid Vapor Pressure

API strongly urges adoption of the ASTM standards on RVP. Reductions of RVP below ASTM standards will be costly to the consumer, increase US dependence on oil imports due to the need to eliminate the butanes from gasoline and will have an insignificant impact on the ozone problem.

- Stage II

  Implementation and maintenance of this control technology will have a severe and in some cases devastating economic impact on the small business portion of the petroleum industry--the service station owner. The consumer will be inconvenienced. The gains in terms of ozone reduction are questionable.

- Desulfurization of Diesel Fuel

  At a cost of more than $4 billion to the petroleum industry and ultimately to the consumer, this control technology will achieve less than a 1% reduction in the SO_2 emissions in this country and will not have any effect on ozone levels.

- Revising NAAQS

  The current process for establishing and reviewing NAAQS standards should remain intact. In this regard it is especially disconcerting that S.1351 departs from the current practice of allowing EPA to use its scientific advisory board structure to establish health based standards for ozone and all other criteria pollutants, shifts this role to Congress and unduly limits EPA's discretion.

Detailed Comments

101(a) This section of the bill would appear to disallow states the opportunity to file a revised SIP if they have not implemented all provisions of their current approved or submitted SIP by the time of the enactment of the bill. In many instances it will not be possible for a state to implement all the provisions contained in its SIP before the end of this year, assuming this bill passes during this session of Congress. Moreover, it is highly questionable as a matter of public policy that all provisions of every SIP should be implemented without regard to a consideration of the benefits those provisions afford. Furthermore it would appear to force a state to implement a plan which has been submitted, but rejected by EPA. This provision will prevent the progress the bill intends to encourage--that states explore new and more effective ways of improving air quality and coming into compliance as expeditiously as possible.

101(b)(2)(A) This section requires the written commitment of the Governor and the principal elected official of each local government or air pollution control agency to develop new implementation plans. It is unclear what the consequence could be in the form of sanctions in a nonattainment area which covers two or more states or multiple jurisdictions if one or more of the Governors or local officials refuse to sign such a commitment. This matter could be further complicated if transported pollutants are found to be a major factor in the nonattainment.

101(b)(2)(B) We believe that many nonattainment areas will come into attainment with few if any additional controls. EPA data, which API recently analyzed and presented before your Subcommittee, suggests that several cities which have had no exceedances in 1984 and 1985 may come into compliance when the 1986 data become available. These areas and other areas close to the standard, could be considered de minimis nonattainment areas. This group includes those areas which can be expected to attain the standard in the near future without the adoption of additional control measures as required by the bill.

101(c)[CAA172(d)(1)] We endorse effective, efficient and enforceable I&M programs.

101(c)[CAA172(d)(2)] This paragraph requires our industry to install Stage II refueling controls. API opposes the installation of Stage II controls for the following reasons:

- Refueling emissions contribute little to ozone nonattainment (EPA indicates that refueling emissions constitute only 2% of the total VOC emissions);

- The control of refueling emissions is neither the most cost-effective nor the most result effective means of controlling refueling emissions;
- Stage II controls are burdensome to the consumer, yet require a high degree of consumer acceptance for effective use;
- Stage II controls are particularly burdensome to small businesses.

101(c)[CAA172(d)(3)] This section requires that a plan be developed to ensure that all centrally fueled fleets of 50 or more vehicles utilize fuels of lower emissions characteristics. API opposes the mandating of alternative fuel use. Such mandating will require substantial and expensive infrastructure changes in the petroleum market. This cost will be incurred in the face of great uncertainty about the environmental effects of some alternative fuels. Some recent data indicate that the impact on air quality could be neutral or negative on balance.

101(c)[CAA172(d)(4)] This section relies on the redefinition of Reasonably Available Control Technology (RACT) in Section 102(b)(6). The new definition becomes maximum reduction achievable. It would also require that the toxicity of the pollutant and the degree of nonattainment be taken into account; establish a permitting system for all stationary sources; and would essentially eliminate marginal costs per ton removed from consideration.

API believes that this section should insure that "practical and commercially available" are retained in the definition of RACT. This will make the definition more workable and less theoretical. Additionally the bill should insure that toxicity and the level of human exposure be considered in determining control measures. This will address the issue of human risks and not just potential hazard considerations. Additionally, the waste products created by the use of control technology needs to be weighed into the control equation. In some cases RACT for NO_x will not be needed as the bill specifies. Data indicate that there may be situations where a reduction in NO_x emissions may increase ozone levels.

101(c)[CAA172(d)(7)] This section will require RACT in regional attainment as well as nonattainment areas. This will force areas which have not been out of attainment and may not have to contributed to ozone transport to unnecessarily require RACT.

101(c)[CAA172(e)(1)(B)] This section presumes that certain nonattainment areas will be unable to comply with the standard by 1992. It establishes a guideline for determining which areas will remain out of attainment after 1992.

This guideline is the "the second highest daily maximum one-hour" measured over the last three years that exceeds the standard by more than 50 percent.

- This established a new standard (i.e., 0.18 ppm as the second highest daily maximum) which may in effect may be more stringent than the current requirement. The current standard states that the 4th highest measurement at all the monitors must be under 0.12 ppm. Thus the bill may constitute a de facto change in the NAAQS for ozone.
- Additionally, this new definition may be applied to a future lower standard.

API believes that the basic methodology of relying on "peaks" or the highest levels only to determine a design value should be changed. A new measure is needed and it should be based on an assessment of the following: statistically validity, actual population exposure across the entire nonattainment region, abnormal meteorological conditions and measurement error.

101(c)[CAA172(e)(1)(C)(2)(A)] This section mandates the adoption of Draconian measures, such as restricting miles travelled, restricting auto registration, etc. without full consideration of the degree of the nonattainment problem, without assurance of the effectiveness of the measures in improving air quality and without any cost effectiveness figures. API does not support these actions.

101(c)[CAA172(e)(1)(C)(2)(B)&(C)] These two amendments to the Clean Air Act are not clearly written and appear to unworkable. The only option available to achieve the mandated additional reductions would be to selectively shut down facilities and operations. For all the adverse impacts on the economy associated with such a step, there would be no guarantee that the standards would be met. The proposal to base major source emissions reductions on 1984 emissions levels should be eliminated. Once maximum controls are imposed on the major sources, the search for additional reduction needs to focus on other factors.

101(c)[CAA172(e)(1)(C)(2)(D) and (3)(A)] Section (2)(D) establishes a minimum emission fee of $100/ton with no threshold for stationary sources in nonattainment areas which are granted a ten-year extension for compliance. The emissions covered are hydrocarbons, CO and NO_x. This would be costly to the stationary source facilities and would not reduce the emissions from the other major sources in the area. Furthermore, fees have not been productive in the past as incentive to reduce emissions.

Section (3)(A) requires each major stationary source, which does not meet its annual emission reduction target in a nonattainment area, be assessed a penalty based on the excess level of emissions. The minimum penalty is $5000/ton. However, the actual fee is determined by the greater of: (a) the avoided control costs per ton of pollutant to be removed; or (b) the economic value gained by the delay in implementing controls.

In addition to an economic effect (which could approach $1,000,000+/facility) the penalty is applied only to stationary sources. Although the language defines a cap, the maximum amount essentially is open-ended and depends upon accounting calculations. Also, it is unclear what the frequency of assessing the penalty will be--one time or annually. API opposes the addition of penalties.

101(e) This section requires that emissions from any proposed source be offset by a reduction of that pollutant from existing sources equal to at least two times the amount of allowable emissions from the proposed source.

Although the desired end is laudable, specifying "two times" the amount of other offset factors is sostringent a measure that it will cause economic hardship in many areas.

API suggests that the wording be changed to state that the amount of offsetting emissions "shall be sufficient to ensure that the attainment schedule in the SIP shall be maintained."

102 (b)(5) The term major stationary source or major emitting facility includes each discrete operation, unit or other activity which produces or may produce emissions of 25 tons or more per year of pollutant. This definition is far too restrictive. It will not allow for the flexibility needed to bubble or net properly. Therefore, required emissions reductions can not be obtained at the lowest cost in each plant or facility because the owner/operator will not have the option of choosing the most cost-effective controls and/or the unit(s) on which to place the controls.

Furthermore, most pollutants of concern are generated through combustion processes. Since uncontrolled resource recovery facilities have potential for large emissions, it is inequitable and perhaps counterproductive to exclude resource recovery facilities from this section and force other stationary sources to shoulder this emission burden.

102(b)(6) Refer to our comments on RACT in Section 101(d)(4).

103(a) This section would establish specific regions in which ozone transport is in part responsible for the nonattainment designation for the downwind region or state. It would establish regional commissions for each of these areas. The commissions would be composed of representatives of the states and the EPA headquarters and regional offices. The commission would identify additional categories of RACT for implementation in the transport region. Additionally, RACT measures would be mandated for those attainment areas which are included in the transport region. In essence, it would result in a de facto designation of nonattainment for each and every state in the transport region.

The efficiency and effectiveness of these commissions would be greatly reduced because:

- The representation on the commission is unbalanced and does not include affected industries, chambers of commerce nor the public;
- The designation of any transport region should be determined only through the proper technical studies, e.g. upward/downward trajectory, etc.;
- Appropriate control strategies should be adopted only after proper regional monitoring and modeling studies are undertaken to identify the most cost effective means for reducing human exposure to ozone and not just to ozone precursors;
- The process should be conducted with the inclusion of all interested parties.

104(a) This section would prohibit, under certain conditions, the construction or modification of a major source in a nonattainment area if its emissions contribute to a pollutant for which the area is out of attainment. This is a restatement of the conditions already extant in the CAA and we oppose its application under present authority as well.

The imposition of a construction ban unfairly penalizes industry for failure to attain an objective that in many respects is beyond its control. Further it is counter productive in that it perpetuates the status quo of existing sources by not allowing for modernization and new source growth which would result in less polluting and better controlled sources. A ban on the construction of new sources or the modification of existing facilities is not a sanction that should be considered.

105(a) This section would establish the mechanism to award grants to the states to cover the costs of plan revisions. It would also establish a mechanism to provide grants to nonprofit groups to cover the costs of technical assistance and participation in the SIP revision process. It would appropriate $75,000,000 for other functions.

The efficiency of this section would be enhanced by providing more specific guidance to the states to assist in a rational planning process. Such guidance would include requirements that the revised SIP incorporate within their designs:

- Identification of the meteorological regime(s) associated with ozone exceedances;
- Identification of the necessary air quality and meteorological data needed for inputs for a regional photochemical model;

- Preparation of a comprehensive emissions inventory for mobile, stationary, area, biogenic and geogenic sources;

- Development, evaluation and utilization of the model for design of cost effective strategies ($/unit of air quality improvement). The emphasis for this planning process is to provide a net reduction in human exposure or dose of ozone above the federal law.

Additionally restricting the granting of these funds to nonprofit organizations raises questions of both the purpose and the equity of the proposal. It is not clear why federal funds should be used to purchase technical assistance only from non-profit organizations.

Finally, the authorization level would not be adequate to allow for the rational planning as outlined above for urban and regional ozone problem areas. The appropriation should be considerably higher.

106(a)and(b) This section which applies to all offshore areas would remove the authority to regulate activities associated with exploration, development and production in the OCS from the jurisdiction of the Minerals Management Service, and override the Congressional intent established in the OCS Lands Act. Furthermore, it would place primary regulatory authority with the local or state agency closest to the OCS operation. The agency would then regulate the OCS activity as if it were governed by the local New Source Review rules which were incorporated into the agency's SIP.

This provision would override the present mandate of Congress to balance energy development with environmental concerns. Furthermore, the provision would lead to a multitude of regulatory regimes on the OCS, fragment the regulations under which industry operates and would give a single locality the ability to stop all future development. The amendment assumes, without any technical basis, that OCS emissions are a major causative factor for coastal ozone exceedances. The amendment would undermine the continuing negotiations among the federal, state (California) and local agencies, the petroleum industry and the environmental coalition which is now proceeding to develop new OCS air quality regulations for offshore California. It would also undermine the use of the data collected as part of the South Central Coast Cooperative Aerometric Monitoring Program to perform analyses of the mechanisms of ozone formation, and use of that data for regional photochemical modelling. The SCCAMP was/is supported in part by funding from the federal government.

106(c) API supports the need for the appropriate control of vessel emissions. We believe such controls must be uniform and consistent, with regard to trade and accomplished without compromising vessel safety. However if the phrase "...or, when engaged in an activity regulated under the authority of the Outer

Continental Shelf Lands Act, while operating in or on waters above the Outer Continental Shelf or on tidal waters within the boundaries of the State." becomes enacted as law, severe impediments to the smooth operation of the United States' and international shipping industry may be created.

203(a) As the National Petroleum Refiners Association (NPRA) stated in its June 16 testimony, the reduction of the sulfur content of diesel fuel to 0.05% as required by this bill, is estimated to cost the petroleum industry $3.3 billion in investment capital plus an additional $1.2 billion per year in increased operating costs. These expenditures will add about $.08/ gallon to the cost of highway diesel fuel. Costs of home-heating oil will increase because it is in a common pool with the highway fuel. Due to process considerations and the probability of the type of misfueling seen during the lead phase-down, it is reasonable to desulfur this entire pool. In some areas, the resulting economics will dictate more imports of home-heating oil. Also, cost of jet fuel will increase because of the greater competition for the light distillates from each barrel of crude.

For those refiners capable of securing the necessary investment capital and permits, it would take at least three years to install the required facilities. Even if the necessary funds and permits can be obtained in a timely fashion, additional time could be required if there was a sudden demand on the resources of the nation's construction industry by all of the refiners in this country to build desulfurization facilities. Because the refiners would be capable of producing only a small fraction of the desulfurized fuel by the proposed 1988 date, there would not be a supply of legally usable fuel available for most of the country's diesel fueled fleet.

Moreover, this requirement will not reduce ozone levels and in fact will reduce the total sulfur dioxide load by less than 1%. This will result in no measurable change in acid deposition even in the most sensitive areas.

This provision will not improve the air quality of our nation, but will have a large economic impact.

203(a)(i) This section mandates a 9.0 psi nationwide cap on Reid Vapor Pressure. API believes that a significant reduction in gasoline vapor pressure to control ozone is neither prudent nor necessary. A reduction in vapor pressure would require removal of butane -- about one percent reduction in gasoline volume for every 1/2 RVP reduction -- from gasoline. Not only will additional product be required to replace the constituent removed, but also additional octane improvers will be necessary because butane at about 91-92 octane blending value is a significant octane booster. The result would be that a significant percent of U.S. octane enhancing components would need to be replaced from imported sources, at least in the short-run. Such controls could, therefore, needlessly increase demand for high cost product imports to maintain the same volume and grades of gasoline. The overall impact on the nation's liquid fuel balance would depend on price, substitution possibilities and the length of the adjustment period. Certainly a reduction in RVP would cause surplus butane to depress the butane market and probably back natural gas into the ground.

According to the National Petroleum Council's 1986 report, gasoline production capability is already being stretched to capacity during the summer months. Adoption of ASTM standards can provide a logical limit for gasoline volatility on a regional and seasonal basis which will ensure consumer satisfaction with vehicle performance.

API proposes that not later than two years after the date of enactment of this subsection, the Administrator shall promulgate regulations under this subsection requiring that the Reid Vapor Pressure of gasoline, offered for sale or introduced into commerce during the warm weather months (as defined by the Administrator), shall not exceed the ASTM standards. After April 1, 1990, no manufacturer or importer of gasoline may sell, offer for sale or introduce into commerce any fuel which does not comply with such regulations."

302(e)(f)(g)(h)(i)(j) This section is potentially the most onerous of all the sections. It requires new standards be created under very short deadlines, does not consider whether the science demonstrates a justification for revising the existing standards, does not consider the costs or feasibility and continues to treat all areas of the country as homogenous with similar problems, air chemistries, weather patterns, etc.

The detailed specifications will force more stringent standards, yet neither the public nor the scientific community will have adequate opportunity for considered input in the process or the outcome. This is a radical departure from precedent and takes away the Administrator's discretion to make decisions based upon the scientific review process followed by public comments.

TESTIMONY OF
DR. RALPH HISE, VICE PRESIDENT OF RESEARCH
CONSOLIDATED NATURAL GAS COMPANY
APPEARING ON BEHALF OF THE
AMERICAN GAS ASSOCIATION
BEFORE THE
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
ON ACID DEPOSITION REDUCTION AND THE
PROBLEM OF OZONE NON-ATTAINMENT

June 16, 1987

Mr. Chairman and Members of the Subcommittee: I am Dr. Ralph Hise, Vice President of Research for Consolidated Natural Gas Company in Cleveland, Ohio and I am appearing today on behalf of the American Gas Association (A.G.A.) to present the views of our industry on the Senate proposals for reducing acid deposition: S. 300, introduced by Sen. Robert Stafford (R-VT); S. 316, introduced by Sen. William Proxmire (D-WI); and S. 321, introduced by Sen. George Mitchell (D-ME). In addition, our testimony will discuss the potential contribution natural gas can make in attempting to bring certain areas of the country into compliance with the standards set by the Clean Air Act for ozone and carbon monoxide.

A.G.A. is a national trade association consisting of nearly 300 natural gas distribution and transmission companies that serve more than 166 million consumers in all 50 states. Collectively, these companies comprise nearly 81 percent of all gas utility end-use sales in the United States. My own company, Consolidated Natural Gas, is a fully integrated gas utility with retail and wholesale service in Ohio, West Virginia, New York, and Pennsylvania. Through our system network we also recently initiated service to Washington, D.C., Baltimore, New York City, New Jersey, and New England.

STATEMENT OF POSITION

The A.G.A. has no formal position on the specific acid deposition control bills introduced this session and our comments are limited to the role of natural gas in reducing emissions and attaining Clean Air Act compliance.

Natural gas is the cleanest burning fossil fuel. Its combustion emits virtually no sulfur oxides or particulate matter, and significantly lower levels of nitrogen oxides, reactive hydrocarbons, carbon monoxide and carbon dioxide than other fossil fuels. Thus, burning natural gas in stationary applications can reduce emissions dramatically.

Furthermore, natural gas can play an important role in facilitating the cleaner burning of other fuels, such as coal or oil, to improve efficiency and reduce emissions levels. This allows the use of abundant natural gas and other fossil fuels as viable environmental options.

Further, natural gas is also a commercially proven vehicular fuel which can result in significant emissions reductions compared to gasoline and other alternatives. Therefore, natural gas can play an important role in reducing emissions believed to be the primary precursors of acid deposition and ozone, including carbon monoxide.

A renewed emphasis on environmental protection through the amelioration of acid deposition dictates that all environmental compliance options must be analyzed to determine the most cost effective methods for reducing emissions. Acid rain control proponents often focus only on coal cleaning through flue gas desulfurization (scrubbing) as the primary means of reducing sulfur oxide emissions. However, natural gas utilization technologies, often in conjunction with other clean air technologies, represent some of the most cost effective and efficient environmental compliance alternatives.

Therefore, the A.G.A. recommends that any emissions control program not dictate the method of compliance but rather should give plant operators sufficient flexibility to choose the most cost-effective compliance alternatives for their sites. Both S. 316 and S. 321 provide for operators to have this flexibility. In its recent repeal of the Fuel Use Act and incremental pricing requirements of the Natural Gas Policy Act, Congress has already taken an important step by removing the regulatory restraints on site operators' use of clean burning natural gas. Including flexibility in acid rain control legislation would be a logical extension of this policy.

DOMESTIC SUPPLY OF NATURAL GAS

The domestic supply of natural gas is abundant. According to the latest Potential Gas Committee (PGC), assessment of recoverable gas at year-end 1986 in the lower-48 states is 620 Tcf. Energy Information Agency (EIA) estimates the proved reserves of gas in the lower 48 states at year-end 1985 to be 160 Tcf. The resultant 780 Tcf is almost 50 times the amount of gas produced in the U.S. in 1986. Regarding the possible price of this gas, proved reserves are defined by EIA to be producible under existing economic conditions. The PGC uses a more general criteria for their geologic work - foreseeable price/cost relationships. Recent studies indicate that at wellhead prices typical of our experience in the past few years, two-thirds of the 780 Tcf of gas would be producible.

Moreover, these supplies represent only a fraction of the total gas resources in place. Gas supplies by the turn of the century will be supplemented by gas from several unconventional domestic sources. The total resources from some of these sources are estimated by A.G.A. to be: tight formations -- 500 Tcf; Devonian shales -- 225 to 1,800 Tcf; coal seams -- 800 Tcf. Estimates of future production from tight formations, Devonian shales, coal shales, and coal seams depend on economic and technological factors, but A.G.A. projects that total annual production from these sources in the year 2000 will range from 1.6 Tcf to 3.7 Tcf and in the year 2010 from 3.3 Tcf to 7.5 Tcf. Other nonconventional sources could also supplement domestic natural gas supply in future years. For example, these sources include gas from landfills, peat and oil shale gasification, geopressured reservoirs, biomass, and gas from hydrates.

The price outlook for natural gas is also favorable. The average field price of natural gas reached a peak in 1983 (on an inflation-adjusted basis), and has been declining for three years. Field prices of some new gas, especially that from wells more than fifteen thousand feet deep which was decontrolled in 1980 began to fall even earlier. Average retail prices (inflation adjusted) also reached a peak in 1983. A.G.A. does not expect average retail gas prices to return to the levels of a few years ago before the end of the century.

NEW TECHNOLOGIES

Using Natural Gas For Cleaner Coal And High-Efficiency Power Generation

Several clean air technologies utilize clean burning natural gas. They include:

(1) the select use of gas to offset emissions from coal or high sulfur oil;

(2) the replacement of relatively old and dirty power plants with cogeneration and combined cycle units;

(3) reburn technology which reduces not only sulfur dioxide but also a large disproportionate share of emissions from coal; and

(4) repowering technology for existing facilities to promote plant life extension while reducing emissions.

(1) Select Gas Use

"Select Use" is a relatively new but well proven combustion technique: burning natural gas with less environmentally attractive fuels in the same (known as "co-firing") or a separate boiler ("bubble concept") for environmental purposes. Gas can be used with most fuels, including Eastern high sulfur or Western low sulfur coal and with residual fuel oil. In one option, gas may be burned or co-fired, usually with coal, in the same unit with resulting operational efficiencies as well as emissions reductions. Alternatively, gas and the other fuel are burned in different units; then the lower gas emissions are averaged with the higher emissions form coal or oil. Such applications, called "bubbles" when approved by the Environmental Protection Agency, would be particularly useful and cost-effective in reducing sulfur dioxide emissions.

Converting just a few facilities, say, slated for retirement, in a given state to sulfur dioxide free natural gas could save the costs of installing scrubbers on numerous plants throughout the state. The concept of a statewide bubble would be an effective tool for reducing emissions.

Another effective mode of select use is the substitution of natural gas for higher sulfur fuels on a seasonal basis, as opposed to a year-round basis. That is, a 20 percent annual sulfur dioxide reduction goal could be met by substituting gas for high sulfur oil or coal at a 40 percent level over six months, as opposed to a continuous 12 month substitution at the 20 percent level.

A strategy of substituting gas for high sulfur oil or coal in summer months offers an economical and flexible control approach to plant operators, as well as numerous ancillary environmental benefits to the nation. In addition, seasonal gas substitution would allow gas distributors and pipelines to increase their capacity utilization during the non-heating season while directly addressing the sulfur dioxide problem when it is most serious.

Controlling SO_2 emissions at specific periods of the year may be more effective than year-round controls, as indicated by the Massachusetts Institute of Technology (MIT) Energy Laboratory findings at their Brookhaven monitoring station - 70 percent of annual acid deposition falls from May through October and 54 percent from June through September. The summer season is also the most serious in terms of ozone episodes.

Select use technology has already advanced from the theoretical to the actual. Many select use bubble applications have been approved by EPA and implemented. About one-third of the bubble applications submitted to EPA to date involve the use of natural gas. As an example, earlier this year in our service area, the St. Joseph Resources zinc plant in Palter Township, Pennsylvania, had begun to co-fire Consolidated's gas with coal to meet its sulfur emission limits under an EPA consent decree.

Some of the advantages of select use are that:

- Plant Operators Could Realize Lower Costs. Using natural gas to offset SOx emissions from coal units tends to have low capital requirements. In many cases, this strategy has the lowest total costs of any control option. The biggest advantage, in most cases, is that the fuel mixture produces a lower composite fuel cost per million Btus than the cost of switching to compliance coals. This allows the current plant coal supply to remain viable. In addition, using current coal supply avoids potential loss of plant production due to problems in switching to low sulfur coal.

  Natural gas co-firing competes well with all other SO_2 reduction technologies. The costs of SO_2 reductions by using natural gas with coal have been calculated to vary from a very low \$50/ton of SO_2 reduced to over \$1000/ton, with many applications in the \$200-\$400/ton range. By comparison, ICF Inc., an independent consultant, estimates a range of costs, from \$250 to \$2000/ton of SO_2 removed, for seven straight coal alternatives. Clearly, natural gas/coal strategies are at the low end of the cost curve.

- Natural Gas Lowers Many Pollutants Simultaneously. Natural gas use simultaneously reduces many pollutants (e.g., sulfur oxides, nitrogen oxides, reactive hydrocarbons, particulates, carbon monoxide, carbon dioxide). It produces virtually no SO_2 or particulate matter, about one-third to one-half as much NOx as coal, and one-half as much NOx as high sulfur residual oil. In addition, gas combustion produces no sludge or ash, in sharp contrast to the scrubbers and precipitators that are used to control emissions from coal.

- Natural Gas Can Increase the Use of Local Coal. Several of the current acid rain proposals have SO_2 emission limits that may be difficult and expensive to meet for units that burn high sulfur coal. One option is to combine two or more relatively low cost techniques to achieve the same reductions while retaining substantial use of local coals. For example, it is possible to employ techniques such as coal washing to partially reduce SO_2 emissions from the coal and then burn it with gas. In some cases this technique can reduce SO_2 emissions by two-thirds while preserving 70 percent or more of the market for high sulfur coal.

- Natural Gas Has Operating Advantages. Some local coals have difficult and unpredictable combustion characteristics. However, when these coals are used with natural gas in a co-firing mode, the industry has experienced reductions in damaging slag deposits, better electrostatic precipitator (ESP) performance, and an overall improvement in boiler heat rates. Although these improvements are boiler specific, one clear benefit is the increase in operator flexibility when firing difficult coals.

  In other cases, a switch to low sulfur coal can impact ESP performance because many of these units were designed in the 1960s to use higher sulfur coals. By co-firing natural gas with current coal supplies, SO_2 emissions can be reduced without the negative operational impact of low sulfur coal switching.

- Natural Gas Use Should Be Increased. Shortly after the NGPA was enacted, a natural gas deliverability surplus, or "bubble," developed in the United States. To the great surprise of many, this "bubble" grew rapidly and has persisted. Lower natural gas demand, coupled with supply stability, has led to 2.0 trillion cubic feet (Tcf) of shut-in U.S. gas. Furthermore, U.S. buyers have contracted for 0.6 Tcf of Canadian gas which they cannot take. This domestic and Canadian surplus has led to hardship among gas producers and to higher consumer prices because of take-or-pay prepayments for shut-in gas. The principal solution to both the take-or-pay problem and decline in producer exploration is to sell more gas. More gas demand will alleviate take-or-pay for gas buyers and cause a "demand pull" for gas sellers that will put them back in the business of drilling for new supplies. The take-or-pay problem is currently being addressed by the FERC and the recent repeal of the Fuel Use Act and incremental pricing requirements of the NGPA will free up supply and should result in increased demand.

- Natural Gas Offers Supply Security. Natural gas can displace foreign oil. 95% of gas used in the U.S. is domestic. For example, switching twelve New England power plants from oil to either natural gas or a gas/coal mix could reduce the region's use of imported oil by 15 percent, while improving the U.S. balance of payments.

- Natural Gas Use Creates Quick Sulfur Oxide Reductions. Many large oil burning units already have gas burning capability. Thus, substituting natural gas for high sulfur residual oil can reduce acid rain immediately, whereas other technologies require many years for equipment design, testing, and installation. For example, Niagara Mohawk switched its Albany Steam powerplant (400 megawatt) from high sulfur residual oil to Consolidated's natural gas in late January of this year. Sulfur dioxide emissions were instantly reduced by 20,000 tons per year. As mentioned above, this one switch had the added national security disadvantage of reducing imported oil demand by 3 million barrels/year. According to MIT, oil units not equipped to burn gas can be retrofitted at a very low cost -- $5 to $20 per KW of capacity. Such a conversion would be relatively quick and easy, entailing minimal, if any, boiler efficiency reduction.

(2) Gas-Fired Combined Cycle and Cogeneration Units

States need not sacrifice economic growth to meet tougher emissions targets. New combined cycle and cogeneration plants can reduce the growth in the emissions inventory. A study by the Office of Technology Assessment, entitled "Acid Rain and Transported Air Pollutants: Implications for Public Policy" (June, 1984), predicts that total SO_2 emissions will increase by about .5 million tons to as much as 3.5 million tons by 2000, while NO_2 emissions will increase by as much as 5 million tons. This rate of increase could force states to require expensive retrofits for existing units and/or curtail growth from new construction. However, significantly lower emissions from combined cycle and cogeneration units make it considerably easier to build new plants while meeting emission standards.

Gas fired combined cycle and cogeneration units are two highly efficient and inherently low polluting ways to generate electricity. In a combined cycle unit, the waste heat from a gas turbine is recaptured and used to produce more electricity with a steam turbine. A cogeneration unit also produces electricity, but the waste heat is used on site in an industrial process. The operating efficiency of cogeneration leads to a net decrease in total emissions. In either case, environmental impacts are less than for conventional coal-fired power plants while operating efficiency is increased and life cycle costs can be reduced. For example:

> A 240 MW electric power plant that uses 2 percent sulfur coal with a 10 percent ash content would produce 4000 tons of SO_2 annually and 200 tons of particulates, even with scrubbers and electrostatic precipitators. In contrast, the SO_2 and particulate emissions from a combined cycle unit are negligible (less than 0.3 percent of the coal unit) while NOx emissions are about half the coal unit's emissions. Gas-fired cogeneration units have similar performance characteristics.

(3) Reburn Technology

Natural gas reburn technology is a nitrogen oxides control method for coal-fired electric utility or industrial boilers that plant operators can use on new or existing coal units to meet tougher nitrogen oxides reduction standards.

In the gas reburn process, natural gas is injected into the combustion gases inside a coal-fired boiler, creating a fuel-rich zone in which the NOx reacts and produces free nitrogen; air is then added to complete the combustion process. Because the gas is injected into the boiler before passing all the heat exchange surfaces, its energy is also used to generate steam. Preliminary testing indicates that gas reburn with 10-20% natural gas could reduce NO_2 emissions by 50 to 60%. In addition, reburn in conjunction with sorbent injection can reduce SO_2 emissions by 40-70%.

The Gas Research Institute (G.R.I.) has funded research by the Energy and Environmental Research Corporation which has shown that the technology works and that natural gas injection produces the largest NOx reductions. The national acid precipitation assessment program, in its most recent annual report, indicates that gas reburn is one of the most cost effective control strategies for sulfur dioxide and nitrogen oxides, and it also indicates that gas reburn has a wide applicability to many boiler types.

G.R.I. is currently planning to demonstrate this technology by retrofitting and testing actual utility boilers. In fact, Consolidated will jointly sponsor a reburn test at an Ohio utility using proven Japanese technology licensed to Combustion Engineering. EPA is the lead agency funding the effort along with G.R.I., the Electric Power Research Institute (EPRI), and the State of Ohio. Practical results should be available in the next two years.

Using Natural Gas Technology to Resolve the Ozone Non-Attainment Problem

Under the Clean Air Act (CAA), EPA designated areas must comply with the ozone and carbon monoxide standards by year end 1987. Sanctions for non-attainment are mandatory under the CAA, and include, among other measures, bans on new construction and cutoff of highway funds. It is difficult to see how many areas can comply with the statutory deadline. The use of natural gas in both vehicular and stationary sources can result in a meaningful contribution toward achieving compliance with the ozone attainment provisions of the Clean Air Act.

The key to achieving compliance with the NAAQS ozone standard appears to be in the control of hydrocarbons, carbon monoxide, and nitrogen oxides. Significant progress will require reductions in all three, and the use of natural gas can significantly reduce emissions of these pollutants.

As stated above, using the select use of natural gas, combined cycle cogeneration and natural gas reburn in stationary sources can reduce emissions of nitrogen oxides in a least-cost manner. Since these applications were explained earlier in this testimony, I will focus on vehicular applications of natural gas to achieve ozone attainment.

Conversion of gasoline or diesel fueled vehicles to natural gas can reduce carbon monoxide emissions, nitrogen oxide emissions and reactive hydrocarbon emissions by up to 99%, 65% and 85%, respectively. This is particularly true for light trucks, some buses, and older cars, which account for 60-90% of vehicular emissions. Actual emissions reductions achieved depend upon a large number of factors including tuning, age and design of the vehicle, and the condition and technology of the gasoline emissions controls and natural gas conversion kit.

In spite of these and other factors, and in spite of the fact that most emissions testing has been performed on vehicles not optimized for natural gas, a wealth of data has made it generally accepted that emissions can be significantly reduced in older vehicles when they are converted to natural gas. There are currently some 30,000 vehicles in the U.S. and Canada that operate on compressed natural gas, primarily in fleet applications. In addition, there are hundreds of thousands of natural gas vehicles operating worldwide. The vast majority of these vehicles have been converted from gasoline and operate in a dual fuel mode, although 27 dedicated (natural gas only) Ford Rangers were constructed in 1984.

Converting one million cars (approximately ten percent of U.S. fleet vehicles) to natural gas could result in a reduction of carbon monoxide emissions by up to 223,000 tons/year, nitrogen oxides emissions by up to 27,000 tons/year, and hydrocarbon emissions by up to 11,000 tons/year. This conversion would amount to less than 100 billion cubic feet (Bcf) of natural gas per year which is less than one-half of one percent of annual U.S. natural gas production. Most importantly, if these reductions are focused in ozone non-attainment areas, some areas may be able to achieve Clean Air Act compliance.

We believe it is important that, if Congress chooses to address the need for reducing the nation's transportation dependence on oil, such legislation should be designed to encourage the development of various "alternative fuels" rather than being restricted to encouraging the development of only one substitute for gasoline. Natural gas, methanol, and even ethanol can make contributions to increased use of alternative transportation fuels in our country.

Every year in the Reagan Administration's budget request for research and development in the Department of Energy, DOE asserts that its goal is to promote a "balanced and mixed" energy source policy. We believe that this policy has merit in that it would help to insulate the U.S. from potential adverse consequences of overdependence on foreign energy sources. By encouraging the development of a variety of alternative transportation fuels, Congress can promote the development of an energy mix. If left to facilitate the development of these alternative fuels, including natural gas, the marketplace can promote the energy security of the nation.

To this end, A.G.A. supports the provision in S. 1351 recently introduced by Senator Mitchell, requiring states, when submitting their implementation plans, to consider requirements for the conversion of fleet vehicles to cleaner engines or fuels.

CONCLUSION AND RECOMMENDATIONS

Because of the long-term availability of natural gas in the U.S. and North America, its acknowledged clean burning characteristics, and its extensive, in-place delivery infrastructure, the use of natural gas for environmental compliance is an attractive option in many applications. The A.G.A. recommends that any acid rain, ozone, and carbon monoxide control legislation give local flexibility to choose the most cost effective means, including natural gas, to comply with mandated reductions of acid rain precursors. Natural gas use in stationary applications (e.g., select use) and vehicles that operate on compressed natural gas should also be specifically included as acceptable components of ozone and carbon monoxide attainment plans under the Clean Air Act.

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Statement
of the
National Petroleum Refiners Association
June 16, 1987
Hearing on Clean Air
Before the
Environmental Protection Subcommittee
of the
Environment and Public Works Committee
United States Senate

NPRA STATEMENT

Senate Environmental Protection Subcommittee

June 16, 1987

Good morning, Mr. Chairman and members of the committee. My name is Ray Dudley, I am Senior Vice President of Tenneco Oil Company; I serve also as the Chairman of the Manufacturing Committee of the National Petroleum Refiners Association. With me is Mr. Lloyd Busch, Vice President of Engineering of Ashland Petroleum Company, and Mr. Urvan Sternfels, President of NPRA. Mr. Busch was the Chairman of the Study Group that produced the survey I'll be reviewing in a moment. We appreciate very much the opportunity of being here today.

The NPRA is a national trade association whose membership includes most refiners, large and small, in the United States. With the tenuous economic condition of the oil industry these days, we have a keen interest in any legislation or regulation that would require costly changes in the way refiners operate. We particularly hope you will carefully examine any assumptions and projections in the legislative proposals you have before you that would impact on the refining and petrochemical industries.

Our comments today, Mr. Chairman, will be directed specifically to the provisions in several pending bills which would require refiners to dramatically reduce the maximum allowable sulfur content of diesel fuel. Sulfur occurs naturally in crude oil. The lower the crude sulfur content, the "sweeter" the crude. If there is significant sulfur in the oil, we call it "sour" crude. The refining process for "sour" crudes usually includes desulfurization, a process in which most of the sulfur is removed.

Diesel fuel is a middle distillate fuel. Distillates are heavier than gasoline, but lighter than residual fuels. Home heating oil and diesel fuel are derived from the same middle distillate. In fact, the majority of the time, they are a common product sold interchangeably from the same tank.

Today the national average sulfur content of diesel fuel is about 0.27 percent by weight. This is about one-half the maximum sulfur content of 0.50 percent by weight recommended for diesel fuel sold in accordance with the standards of the American Society for Testing and Materials.

Provisions in S. 300, S. 321, S. 1123, and now S. 1351 would require the sulfur content of diesel fuel to be reduced to 0.05 percent by weight or even down to 0.025 percent under S. 321 and S. 1123. These are severe reductions in terms of their impact on the refining industry. They would require the construction of extensive new desulfurization equipment in most refineries.

EPA is also considering reducing the sulfur as well as the aromatic content of diesel under its regulatory authority in the Clean Air Act. A preliminary study which was done by a consultant for EPA and which was released to the public last year concluded that the so-called "average refinery" could reduce the sulfur content of diesel fuel to 0.05 weight percent without reducing the availability of diesel fuel. It further said this could be done by using only existing equipment. Those theoretical conclusions are far removed from the real life situations.

Mr. Chairman, I have been in the refining industry for 39 years, and Mr. Busch here has been in it 30 years. And we can tell you from our experience that there is no such thing as an "average" or "typical" refinery. They come in all shapes and sizes. Some are newer than others, and some have undergone significant capital investments for renewal and upgrading. Some have not. Some have access to sweet, low-sulfur crude oil, while others have to do the best they can with the high sulfur crude they get. So regulation, or indeed legislation affecting fuel qualities that is based on assumptions concerning "average refineries," causes us great concern, because the results can be very misleading.

With this in mind, the National Petroleum Refiners Association undertook a comprehensive, refinery-by-refinery survey. We received responses from 139 refineries, representing 98 percent of the national crude oil processing capacity. By this means, we were able to ascertain present industry capabilities, new facility capacities, and costs needed to achieve compliance with a 0.05 weight percent sulfur standard. With your permission, I would like to review very briefly our findings, and would ask, Mr. Chairman, that the entire survey report be made a part of the record.

In the United States today, the actual demand for highway diesel fuel is approximately 1 million barrels per day. But that's not the number we have to look at, because, as I said, diesel and distillate (home) heating oil are essentially the same thing. As a matter of fact, in every geographical area other than the Los Angeles Basin, middle distillate fuel is refined to diesel fuel quality and distributed as a common product that is then sold and consumed as highway diesel, home heating oil, and agricultural or industrial fuels, for a total of about 2.4 million barrels per day.

Thus, with the current lack of diesel fuel and home heating oil segregation capability throughout the distribution system, most of this total volume of 2.4 million barrels a day of middle distillate would have to be produced with very low sulfur content. Therefore, the added cost for reducing sulfur content of motor vehicle diesel fuel would likely be borne also by other consumers, including farmers and homeowners who burn home heating oil.

The question, obviously, is "Do U.S. refiners have the physical capacity to meet the stringent sulfur levels preseribed in the legislation you are considering?" And the answer is, "No, they do not."

The next question is, "Can refiners add sufficient desulfurization capacity to meet the 0.05 wt% level?" And the answer is, "Some could, and some could not." Thirty-seven refineries reported that they would not be able to make the needed improvements, because of either economic or environmental permitting constraints, or both. These 37 refineries account for about 415,000 barrels per day of the nation's highway diesel fuel production. The majority of these are small independent refineries.

The future viability of these refineries, if the regulations were adopted, is at best suspect. Continued operation while yielding diesel fuel or home heating oil which did not meet federal sulfur content would not seem to be an option.

Now, if refiners are required to make the needed improvements, how much would it cost, and how long would it take? Our survey reveals that the additional desulfurization capacity that would be required would cost refiners $3.3 billion in capital expenditures, plus another $1.2 billion a year, or about 7.7 cents per gallon for highway diesel fuel, in operating costs. How long it would take would vary, of course, from place to place. It would be impossible, however, to build all the needed facilities in the very short one to two year time frames set forth in the pending legislation.

The current diesel distillate heating oil capacity of these remaining refineries would fall far short of the demand for middle distillate in the U.S. It is not apparent how this shortfall would be met.

Another question which might be asked is, "Why not put in facilities to segregate the one million barrels a day of highway diesel and not have to spend all that money at the refineries?" This is easier said than done. It would require installing massive amounts of tankage and associated facilities not only at refineries, but also at thousands of terminals, pipeline systems and bulk plants throughout the country.

Mr. Chairman, let me say again that the economic impacts on refiners of a dramatic reduction in the sulfur content of diesel fuel will vary greatly depending on factors such as refinery size, refinery processing complexity, current diesel fuel quality, and quality of crude oil processed. Industry averages do not reflect the disproportionally high burdens that would be placed on some industry segments and individual refiners. For example, for the 25 refineries whose individual crude oil capacities are less than 30 thousand barrels daily, their cost burden to produce 0.05% sulfur diesel/distillate would be three times that of the industry average. This would seriously jeopardize their competitive viability.

Finally, we would observe that the decrease in sulfur in crude oil derived products would be relatively small for the costly new standard. Surveyed refineries currently recover 10,700 tons of sulfur per day. Under the proposed regulation this recovery would be increased only 800 tons per day, or 7.5%.

In closing, we thank you again for inviting us to be here today. This has been a very brief summary of a very consuming and complex study, and if we can respond to any questions you may have, we would be happy to do so. Thank you.

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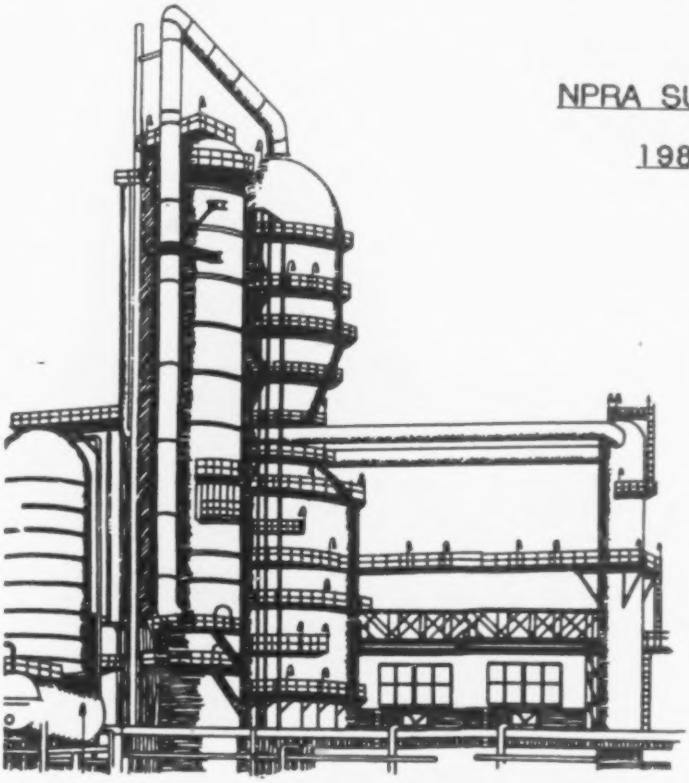
U. S. REFINING INDUSTRY CAPABILITY TO MANUFACTURE ULTRA LOW SULFUR DIESEL FUELS



NPRA SURVEY

1986

NATIONAL PETROLEUM REFINERS ASSOCIATION
SUITE 1000 • 1899 L STREET, N.W. • WASHINGTON, D.C. 20036

NOTE: The following has been excerpted from the above-named report. The report, in its entirety, has been retained in committee files.

EXECUTIVE SUMMARY

In 1985, the Environmental Protection Agency put into place regulations that will limit particulate emissions from over-the-road diesel vehicles. These regulations will go into effect in 1991 and become more stringent in 1994. In the time since the regulations were announced, various studies have been done to measure the effects of these specifications. The diesel engine manufacturing industry has said these regulations will force the use of traps on the exhaust system. However, they claimed these traps will be ineffective because, at the current level of sulfur in diesel fuel, the traps will become plugged by sulfates.

The EPA then contracted for a preliminary study to examine the impact of lowering the sulfur and aromatics content of highway diesel fuel. This study concluded that lowering the sulfur content to as low as 0.05 wt% would be practical and that most refineries could segregate and desulfurize their highway diesel fuel product with existing facilities. The EPA contractor apparently assumed that other distillate fuels, including home heating oil, would not need desulfurization. These conclusions, however, were challenged by many, including the refining industry. In response, the EPA has commissioned another contractor to study the matter in greater depth.

The National Petroleum Refiners Association, realizing the effect such studies could have, conducted a survey on behalf of its members. The purpose of the survey was to establish actual industry capabilities, new facility capacities, costs to achieve compliance with the proposed regulations, and to validate other studies on this subject.

Survey responses were received from 139 refineries, representing 98% of the national crude oil refining capacity. The responses of these refiners confirmed that the earlier study for the EPA greatly overstated industry capability to meet the proposed regulations and understated the costs involved. In 1986, only 77,115 B/D of diesel fuel with a 0.05 wt% sulfur content was produced--mainly for consumption in the Los Angeles Basin area. Even if existing facilities were used to their fullest practical potential, only 315,785 B/D of 0.05 wt% sulfur diesel fuel could be produced in 1991. This falls far below the current consumption of highway diesel fuel which is approximately one million barrels per day. One of the reasons for this limit in capability is that 65 refineries that responded to the survey do not have distillate desulfurization units.

A review of the survey data concludes that increased segregation as an approach to increase availability of low sulfur diesel fuel would not be feasible to any substantial degree either with existing or new facilities. Although approximately 30% of the refineries said they would use some increased segregation if required to lower the sulfur content of diesel fuel, the amount of segregated diesel would increase only slightly from 17.0% of all diesel fuels to 17.9%.

A very large increase in costs, in terms of both capital expenditures and added operating costs, would be incurred by refiners if the proposed EPA regulation is enacted. The magnitude of these added costs is very dependent upon the extent of sulfur and aromatics reduction required.

The NPRA survey examined two sulfur levels; 0.15 and 0.05 wt%. Even the intermediate limit on diesel sulfur, 0.15 wt%, would be quite costly. It would require 763,000 B/D of new desulfurization capacity (a 47% increase), capital expenditures of $2.02 billion, and added manufacturing costs of 4.5 cents/gallon highway diesel fuel if all survey refiners were to achieve compliance.

If the allowable sulfur limit were, instead, 0.05 wt%, then the cost penalties would be far greater. Additional desulfurization capacity would then become 1.5 million B/D (a 93% increase over that now existing with capital expenditures of $3.31 billion. Added manufacturing costs would amount to 7.78 cents per gallon of highway diesel fuel if all refineries built the needed facilities. These added manufacturing costs would amount to $1.2 billion on an annualized basis.

The capital needed to meet the proposed specifications would be unavailable to a large number of refineries. Thirty-seven refineries reported that they would not be able to make the needed improvements because of the financial burden or environmental permitting constraints. These 37 refineries represent a capacity of 415,179 B/D of diesel fuel out of a total U.S. potential capacity of 2.5 million B/D. The small and medium refineries (100,000 B/D and less) are hardest hit by these constraints, with 33 out of the 92 refineries in these categories being unable to build the new facilities.

The study initially contracted by the EPA concluded that the aromatic content would decrease to 20 vol% coincidently if the sulfur content were decreased to 0.05 wt%. However, the refineries in the NPRA survey reported that the aromatic content would decrease only two percent, from 34 vol% to 32 vol%, if the sulfur content were decreased from the current level of 0.27 wt% to 0.05 wt%. This is also borne out in the new capacities needed and the associated costs. If aromatic content automatically decreased with a drop in sulfur content, no increase in cost would be seen when adding the 20 vol% aromatics limitation to the 0.05 wt% sulfur limit. It is important to note, however, that the costs of achieving both the sulfur and aromatic limits would be twice that needed to meet the sulfur specification alone.

With limits of 0.05 wt% sulfur and 20 vol% aromatics in highway diesel fuel, the refining industry would be faced with capital expenditures of $6.65 billion in order to build new facilities or to expand existing ones. The refineries responding to the survey determined their added operating expenses and capital service charges would amount to $2.35 billion per year. This is equivalent to 15.5 cents per gallon highway diesel fuel.

If both the sulfur and aromatics content of highway diesel fuel were restricted, the number of refineries that reported being unable to install the new or expanded facilities increased to 53. These refineries, representing 38% of the total number surveyed, have an associated diesel production capacity of 900,499 B/D. Of the refineries with less than 100,000 B/D capacity, 43 percent indicated an inability to install the needed facilities.

Even if all 139 reporting refineries could make the needed improvements, regardless of financial or environmental permitting constraints, it is not certain that the engineering/construction industry could construct all the needed facilities by 1991.

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Testimony of Elizabeth G. Johnson
Chair, Sierra Club Air Quality Committee
before the
United States Senate Committee on Environment and Public Works
Subcommittee on Environmental Protection

June 16, 1987

Mr. Chairman and members of the Subcommittee, my name is Elizabeth G. Johnson. Thank you very much for the opportunity to testify today on behalf the 410,000 members of the Sierra Club. I chair the Sierra Club's Air Quality Committee, and am active with the Club's New England Chapter.

My hometown of Boston, Massachusetts and the rest of the Northeast, are suffering from unhealthy levels of smog. According to the latest Environmental Protection Agency data, the ozone health standard was exceeded on 28 days in 1985. As many as ten metropolitan areas in New England may continue to violate the health standard for ozone pollution after the December 31, 1987 compliance deadline. This includes the 6.2 million people breathing unhealthy air in the cities of Nashua, Providence, Boston, Worcester, Springfield, and Portland. Greater Connecticut has some of the dirtiest air in the nation; it violated the ozone health standard an average of 36 times annually between 1983-85.

Children, senior citizens, pregnant women, and people already suffering from asthma, emphysema, heart disease, and other chronic respriratory ailments are most susceptible to lung impairment or damage from ozone pollution. For instance, there are over 760,000 people in Massachusetts currently suffering from respiratory ailments, and there are thousands of other New England residents with these afflictions as

"When we try to pick out anything by itself, we find it hitched to everything else in the universe." *John Muir*

well.

And there is increasing evidence that ozone pollution can significantly impair lung function in normal, healthy adults as well. Exposure to unhealthy ozone levels could harm individuals strenuously working outdoors. Boston's recent building boom has exposed thousands of construction workers to its ozone pollution.

Ozone is harming New England's environment as well. White pine trees in Acadia National Park are suffering from damage linked to high ozone levels. On Mt. Greylock in Massachusetts' Berkshire Mountains, acres of damaged of trees have been found. Air pollution is the likely culprit. Smog is destroying New England's breath-taking vistas as well. You can no longer see Mount Monadnock in southern New Hampshire from the White Mountains further north.

In March 1987, the Sierra Club Northeast Regional Conservation Committee issued a "Study of Areas Failing to Meet the Ozone Air Quality Health Standard." This report documents the failure of the current Clean Air Act and the EPA to solve the ozone crisis in New England, and includes recommendations for action by the Congress and EPA to achieve healthy air. I would like to briefly summarize the findings and recommendations from this report.

The Clean Air Act, combined with EPA's poor implementation efforts, has been completely inadequate to eliminate the clear and present danger smog poses to human health and the environment. The current state by state approach to reducing ozone pollution ignores the huge role that interstate transport of ozone plays in contributing to the region's unhealthy air. Ozone and its precursors move up the East coast from northern Virginia to Maine, with each state contributing to the ozone pollution downwind. For instance, Massachusetts claims that fewer than ten percent of its ozone health standard violations are attributable to sources within the state. Yet, current EPA policy allows a state to control its emissions only as much as would be needed to achieve the ozone standard as if the air coming into that state were at or below the ozone standard.

States are also doing far less than is needed to improve ozone levels because EPA approved inadequate State Implementation Plans (SIP). The plans are often inadequate because they rely on overly optimistic air quality models and incomplete emissions inventories to predict that modest reductions in emissions would lead to timely clean up. For example, Connecticut claims to have met the reduction levels required by its SIP by 1985, yet virtually the entire state still violates the ozone health standard.

Even though the planned emissions reductions in the SIPs did not produce the predicted improvements in air quality, EPA has not required additional emissions controls. In addition, EPA has allowed wide variations in states' stationary source pollution control requirements. These inequities have made state governments reluctant to move ahead faster than their neighbors in controlling ozone pollution because of their fear that regulated industries would relocate across state lines to avoid strict pollution controls in their state.

Finally, EPA has failed to adopt strong national controls on volitile organic compound (VOC) emissions from vehicles and their fuels. EPA should have required onboard cannisters on automobiles, Stage II controls on gasoline pumps, and limited gasoline volatility to help ease the ozone problem in New England.

The Clean Air Act Standards Attainment Act of 1987, S. 1351, includes many of our recommendations to solve the ozone crisis in the Northeast. We strongly endorse the provisions which would significantly reduce VOC and nitrogon oxide emissions from motor vehicles and their fuels. These provisions include:

- strengthening national emissions controls on cars, buses, and trucks;
- tightening inspection and maintenance programs;
- providing longer warranties on automobile pollution controls;
- requiring onboard vapor controls on motor vehicles;
- mandating Stage II vapor controls on gasoline pumps in nonattainment areas;

- lowering allowable REID gasoline vapor pressure; and,
- preventing averaging fleet emissions.

We also support the new standards for commercial and consumer solvents, architectural coatings, traffic paint reformulation, and pesticide applications, which will lower areawide emissions from these present mostly uncontrolled sources.

The provisions to strengthen existing air quality standards for ozone, and requirements for new, short-term standards for sulfur dioxide, nitrogon oxide, and fine particulates will also help protect public health and the environment.

There are areas, however, where S. 1351 fails to adequately address the Northeast's ozone problem. First of all, the bill gives communities a full five years to implement additional pollution controls to meet health standards, even if these controls can be implemented much more rapidly. These controls should be employed as soon as possible. In addition, S. 1351 would in effect eliminate attainment deadlines for cleaning up the air in the most polluted cities. In fact, deadlines have been an essential tool in achieving whatever progress there has been to date in reducing or stabilizing levels of ozone pollution.

Second, Section 101(c) would create an open-ended "downwind" exemption which would permit cities with severely polluted air that could not meet health standards in five years to avoid the more stringent program. A city could escape the more stringent program by claiming that it could meet the ozone health standards in ten years if other areas contributing to their problem fully implemented their ozone control strategies. Rather than acknowledging the regional nature of the Northeast's ozone problem, this provision would perpetuate the status quo by encouraging each community to rely on other communities to reduce their ozone pollution, rather than taking the needed steps to achieve clean air. States could end up arguing about which state caused how much pollution, rather than taking steps to reduce it. We urge the Subcommittee to eliminate the downwind exemption, and focus cleanup efforts on a regional basis -- rather than on a state by state -- basis.

Third, although S. 1351 does establish some ozone transport regions, it does not go far enough to solve transboundry air pollution problems. It would allow some parts of the region to be classified one way and be subject to one set of clean up requirements, while another part of the same region is treated differently. This inequitable system will perpetuate the existing problems of the Clean Air Act.

Each state in the Northeast region contributes to the region's total emissions and ozone problem. Each part of the region must have the same nonattainment status to ensure that there is regional consistency in the implementation of pollution control requirements.

Finally, clean air will be achieved nationwide only if there is adequate funding to implement the provisions of an improved Clean Air Act. Funding authorizations and grant programs should become an integral part of the Clean Air Act to make sure that federal, state, local environmental protection agencies have the resources they need to protect the health of all Americans from dangerous ozone pollution.

Our smog problems were not created overnight. They are the result of inadequate controls on dirty motor vehicles, fuels, and industrial emissions, and weaknesses in the existing Clean Air Act. The problem will not be cured overnight, but S. 1351, with the aforementioned changes, would make a positive beginning in reducing and eliminating the region-wide ozone pollution which threatens our health and environment. Thank you for this opportunity to testify. I will be happy to answer any questions.

SIERRA CLUB NORTHEAST REGIONAL CONSERVATION COMMITTEE

Study of Areas Failing to Meet the Ozone Air Quality Health Standard

and

Recommendations for Action

March, 1987

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NOTE: The following has been excerpted from the above-named report. The report, in its entirety, has been retained in committee files.

FOREWARD

This report has been supported by the Sierra Club's Northeast Regional Conservation Committee, to educate the Club's members in the Northeast on the ozone pollution in their region and to assist them in taking action toward finding a solution to this serious problem. First, we would like to thank Steven Pearlman who researched and wrote this report. Second, we would like to thank the Northeast RCC for their generous support, and offer our special gratitude to Vivien Li, Betsy Johnson and Nancy Seidman for their invaluable assistance in designing and editing this report. We would also like to thank state air quality officials in New England, New York, New Jersey, and Pennsylvania; representatives of their professional associations; and officials of the U.S. Environmental Protection Agency in Regions I, II, and III for their assistance.

INTRODUCTION

Ozone's Health and Environmental Effects

Ozone, or what is sometimes referred to as smog, is one of the nation's -- and the Northeast's -- most pervasive air pollution problems. Unlike the ozone in the upper atmosphere which protects us from the sun's harmful ultraviolet rays, "ground level" ozone is harmful to human health. The U.S. Environmental Protection Agency (EPA) has established a health standard of 0.12 parts per million (ppm) of ozone. Over 100 million Americans are exposed to ozone in excess of this health standard and are potentially at risk. Because ozone impairs normal functioning of the lungs, it is particularly dangerous to children (with smaller lung capacity) and to those with pre-existing lung problems -- such as asthmatics and, commonly, a large proportion of the elderly. But new evidence shows it also adversely affects up to 20% of healthy adults, even at relatively low levels.

Lee Thomas, Administrator of the U.S. EPA stated in a recent speech his belief that the current ozone health standard of 0.12 ppm provides little or no "margin of safety", as required by the federal Clean Air Act. Indeed, prior to 1979, the standard was set at 0.08 ppm. Recently, a series of studies on normal, healthy people has shown clear effects on lung functioning from ozone at the 0.12 ppm level, and some scientists believe that the small but significant alterations observed at this level are simply early warning signs of potentially more serious health effects if there is continued exposure to ozone. Animal studies clearly demonstrate that ozone hurts their bodies' ability to protect themselves from bacterial and viral infections at ozone levels of 0.08 ppm. Returning the "primary" (health) standard to 0.08 ppm would not only offer greater protections for many of the more than 100 million Americans living in areas violating the current ozone standard, but would also begin to protect millions of others living in areas where virtually no ozone pollution controls are required.

Ozone is also demonstrably responsible for crop losses estimated at $2-3 billion per year. And strong evidence exists linking ozone as a major contributor to declines in forest growth in both the East and the West, declines which exceed $10 billion annually in economic value. The Clean Air Act requires EPA to set a "secondary" ozone standard to protect crops, forests, buildings, etc., which the agency has set at 0.12 ppm, the same as the health standard. Yet, evidence from EPA's own studies indicates that several cash crops (including corn, wheat and soybeans) experience yield losses of 10% or more at sustained ozone levels as low as 0.04 ppm. Repeated ozone levels as low as 0.08 ppm have been implicated in damage to white pine in the eastern U.S.

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TESTIMONY OF

PRISCILLA ROBINSON

ON AIR QUALITY PROBLEMS IN WESTERN CITIES

PRESENTED ON BEHALF OF

SOUTHWEST ENVIRONMENTAL SERVICE

BEFORE THE SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION

OF THE U.S. SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

JUNE 16, 1987

P.O. Box 2231, Tucson, Arizona 85702 • (602) 624-2353

TESTIMONY ON AIR QUALITY PROBLEMS OF WESTERN CITIES BEFORE THE U.S. SENATE SUBCOMMITEE ON ENVIRONMENTAL PROTECTION.

PRISCILLA ROBINSON, DIRECTOR OF SOUTHWEST ENVIRONMENTAL SERVICE,
TUCSON ARIZONA.

JUNE 16, 1987

My name is Priscilla Robinson. I am the Director of Southwest Environmental Service, a small nonprofit environmental advocacy organization located in Tucson, Arizona. I appreciate the opportunity to testify today on the air quality problems that are common to western cities.

My testimony will include (1) A discussion of the air quality problems common to western cities, (2) A review of the solutions (3) A summary of the changes needed in the law to help western cities achieve and maintain air quality standards.

I will be focusing on western cities outside of California where the problems are certainly no less severe, but they are different. Much of the specific information I will be using is from Phoenix because I have been directly involved in developing air quality plans for that city; however, it is applicable to other western cities as well.

I. Air Quality Problems in Western Cities

Carbon Monoxide - a Western Problem

A review of EPA's recently released list of cities exceeding the carbon monoxide standard, ranked in order of maximum highest concentration of CO, reveals some interesting patterns. Western cities, large and small, dominate the top half of the list. The top seven cities are all in the west. In fact, 14 of the top 18 are western cities. Further checking reveals that 11 of these 14 are in attainment for ozone. In all, there are 19 western communities outside of California where the health standard for carbon monoxide is exceeded, but the standard for ozone is met. Four other western cities - Denver, Phoenix, Salt Lake City and Seattle - are nonattainment for both CO and ozone, but particularly in Denver and Phoenix, the CO problem is far more severe. Concentrations of CO exceed the health standard by two and a half times times in Denver and by over two times in Phoenix. (See attachment #1)

The common element among western cities that causes the CO problem is the tendency toward nightime temperature inversions in the winter. A temperature inversion acts as a lid that traps pollutants close to the ground. Topography and climate contribute to this condition. Dry air, common to the interior west, is an important contributing factor. Extreme cold is also a factor in northern areas, particularly in Alaska.

Altitude plays an important role in several western cities. CO emissions from vehicles are about 65% higher at 5000 feet (the altitude of Albuquerque, Denver and the Front Range communities of Colorado) than they are at sea level. Reno, Salt Lake City, and Provo, Utah are slightly lower but also affected by altitude. In addition to higher emissions, concentrations in the ambient air are also greater at high altitudes because the mass of CO is dispersed in thinner air.

In contrast to the severe wintertime inversions that cause high concentrations of carbon monoxide, conditions in the west are favorable for dispersion in the summertime when ozone is formed. Although conditions are favorable for the formation of ozone in much of the west, (lots of ultraviolet light and heat) the climatic conditions favor good mixing at high altitudes with consequent dispersion.

Stationary Sources of Carbon Monoxide

Stationary sources play a relatively small part in total emissions in western cities. Wood burning is a problem in varying degrees throughout the west, but for the most part, industrial sources are not a significant contributor to urban emissions. In Denver, which has the second highest violation of the health standardfor CO in the nation, 75% of CO emissions are from cars and 15% from wood burning. In Phoenix, which has the third highest violations of CO in the nation, 90% of CO emissions are from cars and wood burning is not significant.

Growth and Trends

All of these western communities are facing the most rapid population growth in the nation. All are designed as auto dependent communities, with primary attention given to expanding the highway system and little to expansion of public transit. In most of these communities the total vehicles miles traveled (VMT) is growing faster than the population by significant amounts. New developments around Phoenix, Denver, Albuquerque and Salt Lake City are designed to be entirely auto dependent, with little or no consideration given to the air quality impacts of low density expansion.

The trends in maximum concentrations of CO in Phoenix have been nearly level since 1978. The benefits of the gradual replacement of older cars with new cleaner cars and an effective inspection and maintenance program have been offset by increases in total VMT. The air quality has not improved as predicted, possibly due to some optimistic assumptions in the Mobile3 model.

This rapid population growth is expected to continue. Cities are planning highways and sewer systems to accommodate population growth of 2% to 3% a year and more. Total miles traveled is predicted to grow at even faster rates. For example, Total VMT is predicted to grow at 7% in Denver. Replacement of older cars, with high rates of CO emissions, with new cleaner cars is providing significant benefits now - enough to offset the growth in total VMT. This benefit will begin to diminish in about eight years after the older cars have all been replaced with cleaner ones.

The Long Range Problem

Under current plans, Phoenix will never attain the health standard for CO. The latest round of modeling done for Phoenix's current nonattainment plan update shows a gradual downward trend in CO concentrations until about 1995. After the mid-90's the benefits of all adopted strategies will be overwhelmed by the growth in total VMT and concentrations will begin to rise. The combined effects of all the strategies that Phoenix has approved will not achieve attainment of the health standard before the curve begins to rise.

The replacement of older cars with newer cars will continue to be the most important strategy offsetting growth in VMT. New emission controls on heavy duty gasoline powered trucks, due to start in 1988, will provide important benefits. Heavy duty trucks constitute only 2% of registered vehicles in Phoenix, but are estimated to emit about 20% of vehicular CO.

Expansion of the existing inspection and maintenance program will provide additional benefits for the next several years. The anti-tampering and waiver provisions were significantly tightened by the legislature last year. This program may be close to its maximum potential.

The other currently available strategies for CO produce relatively small benefits. A review of 15 new strategies for Phoenix showed a total reduction in CO emissions of 22.84%. The strategy showing the greatest reduction was voluntary no drive days (5.83%), followed by a mandatory employer based trip reduction ordinance (3.40%). Both of these are probably overly optimistic. Reductions drop quickly for the remaining strategies including improved transit, increased rideshare, etc.

By the mid 90's, the benefits of the expanded I/M program, replacement of the fleet with newer vehicles and minor strategies will be outweighed by urban growth. Air quality will begin to deteriorate until it reaches the levels of the 1970's.

Like the Red Queen in Alice in Wonderland, we are running as fast as we can to stay where we are. Without significant improvements in automobile technology and land use planning to control the growth of VMT, we willl begin to fall behind.

II. Solutions

There is no silver bullet for urban air pollution. No single solution or group of solutions will solve the air pollution problems of rapidly growing urban areas.

It is important to distinguish between solutions aimed at achieving attainment of standards and the kind of planning necessary for maintainance of standards in the face of continued population growth. The goal of short term strategies is to accelerate attainment of standards. The goal of long term strategies is to provide for maintenance.

The Short Term

The possible approaches for carbon monoxide are:

1. Measures to reduce emissions per mile -- oxygenated fuels.

Other than the gradual replacement of the fleet now taking place, the main strategy available for the short term is oxygenated fuels. Different fuels are appropriate for different problems.

The use of alcohol blends is a strategy that appears to have considerable potential. Mandatory use of 3.5% oxygen blends in Denver is predicted to result in a 12% reduction in maximum design value of CO concentrations. Reductions in emissions are estimated at between 20% and 30%.

The benefits from the use of alcohol blends will diminish with time because the major reduction in emissions is from older cars. The greatest percent reduction is from cars built prior to 1980. Vehicles built after 1980 have a closed loop emission control system that tends to negate the emission reduction benefits from alcohol fuels. Benefits to older cars will continue as long as significant numbers of these cars are on the road.

Hearings taking place in Colorado this week should shed more light on some of the critical issues. Colorado is expected to mandate clean burning fuels in the wintertime, probably for the coming season. The program will serve as a test case for other western communities and provide much valuable information.

There is still much contradictory information about alcohol blends although the strategy shows greater potential in the short term than any other new strategy. EPA has been very slow to research this issue with the result that there is no good source of objective information. The field has been dominated by conflicting information from advocates of various points of view. Leadership has been left to the states, primarily Colorado and California.

Modification of public and private fleet vehicles to clean burning fuels is a strategy with considerable potential. In addition to reducing emissions, these fleets will also serve as pilot programs for various alternatives. Compressed natural gas is receiving considerable attention in Arizona.

Recent legislation passed in Arizona requires the use of clean burning fuels in all pre-1980 non-diesel vehicles in both public and private fleets by October 1989. Clean burning fuels, not now available for sale in Arizona, will be available for sale to the public after October 1988.

2. Inspection and Maintenance Programs

Inspection and maintenance programs maximize the benefits of the most effective measure, new car emission controls. These programs ensure that these benefits are not lost. Arizona's I/M program is considered to be among the most effective in the country. Recent legislation tightened the anti-tampering rules and further limited the waiver provisions. The program is close to its maximum potential.

3. Measures to improve traffic flow

Idling cars produce many times more carbon monoxide than cars moving at higher speeds. There are several different approaches to this problem. Traffic improvments, including such measures as improved signalization, one way streets, and other flow management tools are important. Staggered work hours can reduce peak hour traffic, at least temporarily. In addition, many cars are still built to bypass the emission controls on idle, compounding the problem.

4. Measures to reduce total VMT

Measures to reduce VMT, such as rideshare programs, improved public transit and similiar programs do not show very large reductions in total emissions. These measures go against the grain of existing urban design and habits in western cities. Imposing these measures on established situations is a kind of lifestyle retrofit. It is difficult to implement without complementary changes in urban design.

Despite their limited effectveness, measures designed to reduce total VMT are important and can affect peak hour traffic when emissions are greatest and high concentrations are most likely to occur.

Voluntary no-drive days show benefit, but will only work as long as the public perceives an emergency situation.

Employer based trip reduction ordinances, requiring large employers to participate in trip reduction plans, show some promise. Phoenix and Tucson, along with other western communities, are in the process of developing ordinances based on programs adopted by California communities. Success of these programs will depend on continuing cooperation from employers and a high degree of coordination between the various elements of the programs - including planning, transit subsidies, rideshare, charter buses, and parking controls.

Employers in Phoenix and Tucson are expressing interest in cooperating, at least in the initial stages. These programs may show some short term benefits, but the long term benefits are probably more important.

5. Measures to adjust the time of peak hour emissions.

The purpose of these measures is to change the time of peak hour traffic so that it takes place before the daily nighttime inversion occurs. There are two basic approaches. One approach is to adjust working hours so that work trips are either distributed over a wider time span or take place before inversions form. The other is to institute daylight savings time in the winter, thereby moving all activities one hour earlier, before the inversion forms.

There are several uncertainties in these largely untested techniques. The winter daylight savings time strategy assumes that people will go home earlier and stay there. It seems likely that the extra hour of daylight at the end of the day may simply encourage additional travel after work. The effect of the change on individual behavior is simply not known.

Despite these uncertainties, both Denver and Phoenix are considering adoption of winter daylight savings because the modeled potential for improvement appears so great and because other strategies yield so little. The large modeled benefit results from the fact that the strategy relies on manipulation of meteorology, which is by far the more powerful of the two variables (meteorology and total emissions) that determine ambient concentrations.

Because strategies to adjust the time of peak hour emissions rely on meteorlgy rather than on reductions in emissions, they are dispersion techniques. They are comparable to tall stacks or intermittent control systems for stationary sources and the disadvantages are the same.

Ambient concentrations nearby may be maintained more easily, but the pollution effects farther away, such as visibility reduction and acid rain, will continue to grow. Urban air pollution is responsible for significant amounts of visibility reduction and acid rain in the west.

EPA should not encourage the use of these strategies except as a quick fix to mitigate immediate health risks. States should not be allowed credit for these strategies in their SIP's because dispersion techniques are not emission reductions. Dispersion techniques are not allowed under existing law and should not be encouraged.

The Long Range Problem

The problem for the long term is maintenance of standards in the face of rapid growth. EPA has shown little interest in this problem, preferring to concentrate on the short term problem of attainment. Strategies now in use will be essentially "used up" by 1995, when emissions will begin to rise. For Phoenix, where the health standards will never be reached, air pollution will dramatically worsen.

If western cities continue to grow after that, emissions will grow at the same pace as the VMT, no longer offset by the gradual replacement of dirty cars with cleaner cars. There are only two approaches available to us for long term maintenance. We must pursue both approaches:

1. Lower emissions per mile - cleaner cars

Legislation introduced last week, the "Clean Air Standards Attainment Act of 1987", proposes to reduce auto emissions by half -- essentially pursuing the same course we are now on. While this appears to be a laudable idea, it is not enough.

I have some concern that the pursuit of tighter controls for nitrous oxides may preclude tighter emission limits for CO. Reduction in CO emissions depends upon more complete combustion, which usually results in higher temperatures. Higher temperatures produce more NOX emissions. Since ozone is considered to be a more important problem than CO in the east and in Los Angeles, I am concerned that the CO emission limits may be sacrificed in the process - to the detriment of western cities.

The real solution is to pursue either a new technology or a new fuel that will result in a car that will not produce significant amounts of any pollutants. There are several alternative approaches to cleaner cars. The one thing they all have in common is implementation time, a decade or more. By the time that decade has passed, many growing cities will be facing severe deterioration in air quality.

Some of my fellow environmentalists, especially in the west, are convinced that neat methanol (85% methanol and 15% gasoline) is the most feasible alternative. Tests done in New York on a fleet of taxicabs demonstrated that vehicles using neat methanol emitted only 3% of the carbon monoxide from new gasoline fueled cars, with no increase in NOX emissions. The California Energy Commission has recently entered into an agreement with ARCO to begin marketing neat methanol at gas stations in the Los Angeles area.

Whether or not it proves to be the ultimate answer, there is no reason not to begin demonstration projects on a national scale now to test this alternative, as well as any others that appear promising.

Regardless of the array of alternatives selected for testing, it is absolutely essential that EPA take a pro-active position with regard to the development of a genuinely clean car within the next decade. The technology exists. What is lacking is the will to begin.

2. Control of the growth of VMT -- review of indirect sources

The growth of total VMT is a function of both land use planning and population growth. Total emissions will be five times greater if the average person drives 50 miles per day than if the average person drives 10 miles per day. The design of a city is the primary factor in determining how far its citizens drive. Until now, no community has seriously tried to control the growth of VMT through land use planning.

The typical response in growing cities is to plan facilities entirely according to a demand driven model. As cities spread out and traffic increases, everyone drives farther to reach increasingly more distant destinations. Road systems are planned to meet demand, encouraging yet more travel. Somehow we must begin to reverse this trend and start planning cities in a new way.

A few communities have started to consider the air quality impacts of planning. Portland, Oregon is the outstanding example. (See attachment #2). But EPA, restricted by law from requiring review of indirect sources, is trailing behind. Implementation of these solutions is complex and involves integration of many planning strategies.

Most of these efforts will not realize any benefit for many years. The greatest impact will be on new development. However, a city like Tucson, which is confidently planning to double in size within the next 25 years, clearly has an opportunity to control the design of the development that is not yet built. Admittedly, this is a bold step into unknown territory, but it must be tried.

III Changes Needed in the Law to Achieve and Maintain Air Quality

While the 1977 Amendments succeeded in reducing automobile emissions, they did not succeed in producing the overall emission reductions necessary to meet health standards. Major changes are required, not just a little tuning up or tightening up.

In the past, the communities I am familiar with have been lax in implementing the strategies contained in their adopted plans. There has been a general belief that improved technology would provide solutions and that uncomfortable choices, such as more money for transit, would not be necessary.

The time is ripe for new approaches. The era is past when communities believed they could ignore air pollution and it would go away. The public is serious about air quality and the politicians must be serious, too. Many communities are involved in a serious effort to develop plans that will clean up their air.

They are receiving very little help from the EPA. EPA has fallen behind in the search for new strategies and, through indecision and delay, has lost its credibility as an enforcer. Communities no longer believe that anything bad will happen to them from failure to comply with the Clean Air Act. Tucson and Phoenix, for example, are in the process of developing new nonattainment plans, a process that was driven by a citizen suit, not by any action from EPA. Local planners are much more concerned about the attorney who filed the suit than they are about any requirements from EPA. This must change.

Areas of concern:

1. Emphasis on maintenance of standards.

The Clean Air Act does not define the concept of maintenance. Although plans are presumed to provide for maintenance, the focus of attention is on attainment. This is effective in the case of stationary sources, but does not work for rapidly growing cities where the primary source of pollution is motor vehicles.

The most straightforward way to ensure continued maintenance of air quality standards would be to require that air quality planning be done for the same planning horizon as for the Regional Transportation Plans required by the Federal Highway Administration. The usual requirement for these plans is twenty years. Communities should be required to update their air quality plans as part of the update of Regional Transportation plans. This would ensure a degree of consistency between the two plans and emphasize the air quality impacts of changes in transportation plans. The law should also require communities to use the same assumptions with regard to population size and distribution, traffic projections and so forth.

This would encourage communities to pay attention to the air quality consequences of planning for rapid growth. It would also be a first step in integrating air quality planning into regional land use planning so that the air quality consequences of alternative land use forms would be immediately apparent.

2. Review of Indirect Sources

The prohibition in Section 110 against requiring such a review must be eliminated if EPA is to become a relevant force in the nonattainment planning process. Growing communities must begin to consider the air quality implications of land use decisions or they will never be able to maintain air quality standards. Requiring review of indirect sources would have the effect of forcing communities to integrate air quality planning with other regional planning, specifically Regional Transportation Plans and 208 plans.

The problem today is that decision makers do not have air quality information before them when land use and facility planning decisions are made. While the solutions are not simple, good decisions can never be made unless the relevent issues are reviewed and the information is presented to decision makers in a timely fashion. That is what "review of indirect sources means". Such review must become part of the usual way of making land use decisions in growing communities.

3. A pro-active approach to new technology and alternative fuels

EPA has been trailing far behind in all new strategies, but use of alternative fuels is certainly the most obvious. The law must direct EPA to actively pursue, not only short term strategies such as the use of alcohol blends, but strategies with a potential for larger benefits in the long term - such as the use of neat methanol. Use of alternative fuels should be added to the list of mandatory strategies cities must adopt if they have not met health standards. Mandatory use of alternative fuels for fleet vehicles, as proposed in the "Clean Air Act Standards Attainment Act of 1987" is a limited approach and should be expanded.

4. Substitution of methanol for diesel powered vehicles

Although the earlier parts of my testimony did not address this issue, no other available strategy holds as much promise for directly improving air quality.

One of the effects of the new PM 10 standard is to focus attention on specific sources. The largest component of wintertime haze in most western cities is carbon, and the largest single source of carbon is diesel emissions. These tiny particles are not only a real threat to health, they are also the most visible aspect of air quality. Most people do not understand that the pollutant for which their community exceeds the health standard (CO) is invisible. They respond to visible pollution.

There is no technological barrier to the substitution of methanol for diesel fuel. Whether in connection with the revision of the Clean Air Act or in separate legislation to establish a methanol demonstration project, I urge you to support pilot programs and demonstration projects to encourage the shift from diesel fuel to methanol as quickly as possible. As a first step, federal regulations under the new UMPTA grants should require all new federally funded buses to be fueled with methanol.

5. Stage two vapor recovery and onboard cannisters

It is time to recognize that this is not an either/or situation. We need both. Stage two vapor recovery (capture of emissions during refueling at gas stations) is a strategy that local governments can and should implement at once in ozone nonattainment areas. It is within the power of local governments to enforce, and the benefits are realized fairly quickly.

Onboard cannisters are more effective and should be implemented. But for a community like Phoenix, where it takes 15 years to replace the fleet, the benefit will be realized very slowly. Since onboard cannisters will not work for all cars all the time, the vapor recovery system will still fullfill a need, even after most of the fleet is replaced with new cars. If a community reaches a point where they feel that vapor recovery is no longer needed, it can be dropped. One strategy is not a substitute for the other.

6. Federal grants for transit

The Federal Mass Transportation Act of 1987 will provide significant new help in funding the transit systems needed to help auto oriented communities change their transportation patterns. Grants for new starts for light rail may be the boost that is necessary for these communities. However, it is disappointing that there is no significant new money available to expand existing bus fleets. Fleet expansion is still the transit strategy most readily available to most communities. Significant federal help will be required to make the transit elements of nonattainment plans work.

As noted above, it is important that any new federally funded buses be methanol fueled.

7. Deadlines and Sanctions

If EPA's role as an enforcer is to be restored, deadlines must be firm and sanctions automatic. They must not be left to the discretion of EPA.

The only truly effective sanction is withholding of federal money for highways and sewers. Construction bans are not effective because new industry does not pollute in sufficiently large amounts to be affected by the ban. Both Phoenix and Tucson have been under construction bans for particulates for several years with no noticeable effect.

Congress should not provide any deadline extensions for cities that are not in attainment and have failed to fully implement their previous plans. Cities should not be allowed to backslide from committments already made for such things as expansion of transit systems, implementation of I/M programs and other strategies. Sanctions should be automatic in these cases.

For the future, Congress should make sanctions automatic where cities fail to submit plans or where strategies are not implemented on time. Cities must once again believe that there are penalties for failure to perform.

IV. Comments on the Clean Air Standards Attainment Act of 1987

The proposed act does not provide much help to growing cities with a severe CO problem even in the short term. Although many of the strategies, such as centralized I/M and conversion of fleets, are important for cities that have not already adopted them, there is little here that is new. Phoenix has already included all of these strategies in its new nonattainment plan, except for the new car emission controls, about which I have expressed some doubts. Even with the adoption of all of these strategies, Phoenix will never show attainment. Emissions will begin to creep up in the mid-90's, even though the standards are still exceeded. Clearly, more is needed.

There is even less help for the long term problem of maintenance in the face of rapid growth of vehicle miles traveled. The law must direct EPA to pursue new technologies, paricularly alternative fuels, and it must require coordination of land use planning with air quality planning.

I am concerned that the proposed deadline structure will allow cities that have failed to implement elements of their old plans another five years to delay action. I am also concerned that the concept of reasonable further progress seems to have disappeared. Instead, it should be revived and given some teeth. Failure to maintain reasonable further progress should result in automatic revision of plans with mandatory new strategies. During the past ten years, communities have failed to show reasonable further progress, but nothing has been required of them. Now the deadline is here, and health standards have not been met. The purpose of these amendments should be to ensure that this does not happen again. Requirements must become tougher, not easier.

To conclude, the plight of cities like Phoenix depends on bold new action from the federal level. Although there is more commitment to action now than in the past, the force of federal law must be reintroduced into the process.

ATTACHMENT #1

Western Cities(1) Ranked by Maximum Concentrations of CO

	CO Design Value(2)(ppm)	No. of Exceedences(3)
Denver, CO	24.0	59
Phoenix, AZ	20.3	85
Provo-Orem, UT	19.1	73
Anchorage, AK	18.0	43
Fort Collins, CO	17.8	7
Fairbanks, AK	17.7	4
Albuquerque, NM	17.2	57
Las Vegas,	16.3	21
Medford, OR	16.3	43
Greeley, CO	16.2	12
Reno, NV	16.2	26
Boise City, ID	15.5	15
Yakima, WA	13.9	6
Colorado Springs, CO	13.2	4
Missoula, MT	12.6	8
Portland, OR	12.2	10
Spokane, WA	12.2	15
Tacoma, WA	12.2	15
Salt Lake City, UT	12.0	9
Seattle, WA	11.5	10
Tucson, AZ	11.5	14
Grant Pass, OR	11.3	12
Boulder-Longmont, CO	9.9	2

1. excluding California

2. The CO design value is the highest second maximum eight(8) hour value recorded during the three year period from 1983 - 1985.

3. The number of exceedences during the year in which the design value was recorded.

4. The eight(8) hour CO standard to protect public health is 9ppm.

ATTACHMENT #2

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SUNDAY, MAY 31, 1987

Focus
Portland

So Long Cars, Hello People

By TIMOTHY EGAN

BUD CLARK, the tavern owner who became Mayor of this Oregon city in 1984, pedals his bicycle to City Hall most days, but he seldom draws so much as a second glance from passers-by. That is because Portland has restricted cars and turned its downtown over to pedestrians. The result of that and several other zoning decisions has been a dramatic revitalization.

Instead of fortifying its urban core with skyscrapers and high-rise condominiums, this city in the valley cut by the Willamette and Columbia Rivers has gone the other way. Since 1973, it has phased in a number of changes, including tearing down a freeway and restricting building height to 400 feet. It has also limited the size of buildings on sites that have river or mountain views.

In 1978, it took the biggest step of all and banned passenger cars entirely from a 12-block stretch of the two main downtown thoroughfares — Fifth and Sixth Streets, forcing residents to take public transportation.

• • •

"The pedestrian is critical to Portland," said William Wyatt, the head of the pro-growth business group, Association for Portland Progress. "We discourage sky bridges because they take people off the street. We discourage blank walls. We discourage traffic. All of this is now paying off."

Now, city planners are turning their attention to housing. In 1983, the Portland Development Commission selected a plan to build a midsized village of town houses, a broad esplanade, a 200-slip marina and several small shops on the last remaining undeveloped parcel of downtown waterfront property.

Called RiverPlace, the $80 million community of 565 moderately priced housing units will sit on eight acres. So far, a third of the units have been completed and more than 80 percent of those have been sold or leased, according to the Cornerstone Columbia Development Company of Seattle, the developer of the project.

The wood-frame town houses have gardens and grass walkways connecting the units,

Continued on Page 6, Col. 1

Focus **Portland**

So Long Cars, Hello People

Continued From Page 1

with parking underground. On a Sunday afternoon, it seems much like a small town, with strollers of all ages milling about the shops and on the lawn. On one side of RiverPlace runs the Willamette River and a widely used new park built where a four-lane expressway once ran. On the other side are the downtown office and government buildings.

RiverPlace is the latest manifestation of what residents here call the Portland renaissance. Beginning with the election of Neil Goldschmidt as the Mayor in 1973 — he is now the Governor — Portland made a decision to sharply restrict auto traffic in the center of town. While the city decided to ban passenger cars altogether from its two main streets, it also limited them in the rest of the city by instituting in 1975 a strict parking cap. The city has provided for only 40,000 parking spaces in a 300-block area.

To get downtown in this city of just under 400,000, residents now park at one of five free lots on the city outskirts and then take MAX, a new public light rail system, or a bus. Once inside the 300-block area, both bus and rail service are free.

In the West, where the car has long been king, all this caused considerable controversy. The parking lid "was very destructive for a long time," said William Roberts, the former head of the Portland Development Commission. People for a time simply stayed away, he said.

But the city was being choked by air pollution. In the mid 1970's, Portland averaged 275 days a year when the air quality violated Federal standards. In addition, Nordstrom, one of the main retailers, was planning to leave the city and head for the suburbs.

Mr. Goldschmidt enlisted key business leaders to help him with a master plan that was sold as the only way to save a dying, misused downtown. The plan called for government buildings, business offices and new housing to be within walking distance.

The two 12-block stretches where passenger cars were banned "set the tone and the standard for redevelopment," Mr. Roberts said. Street-level shops appeared. The city installed stylish benches, cement planters and other street furniture.

Portland now averages one day a year when the air quality exceeds Federal standards. A year ago, Max, the light rail system, opened and has been embraced to such an extent that ridership figures exceed records every month. MAX has not only kept cars out of downtown, but also brought hordes of new shoppers to the city. The busiest shopping day is Saturday, mainly because of MAX, according to recent city figures.

The New York Times/Max Gutierrez

A section of RiverPlace, an $80 million community in Portland, Ore.

"Business is up — and in some cases up tremendously — all over downtown since MAX opened," Mr. Wyatt said.

The limits on building height and size have not kept new buildings from going up, developers say. They point to the pyramid-crested KOIN Tower, named after the call letters of the local television station housed there, and the 18-story office building, One Financial Center, set to open in August, as recent examples.

Vacancy rates have hovered around 17 percent, but the relatively cheap rent, $14 to $24 for the most-expensive space, has commercial real-estate sellers predicting a healthy market, as long as the service economy keeps bringing in new jobs.

NEXT year, construction is set to begin on a $160 milllion, three-block retail and office park called Pioneer Place, most of it designed by the Rouse Company. The office building will be relatively small — 18 stories with 330,000 square feet. A retail anchor, Saks Fifth Avenue, and a hundred smaller stores are planned.

The Portland Development Commission has been the dominant force behind most of the city's new development. For instance, it acquired the waterfront parcel on which RiverPlace stands, and sold bonds to get the initial work done.

City officials now have their eyes on a 31 acres of railroad property just north of downtown for a mixed-use project. They also plan a $65 million convention center near the Coliseum on the east side.

But perhaps the most-important step that Portland took was the unveiling of Portlandia, a 38-foot statue of a goddess. She looks out from the front of the Portland Building designed by Michael Graves, which has received national attention for its multicolored exterior. The goddess — a major tourist draw — is said to be the second-largest hammered-copper statue in the country, behind only the Statue of Liberty. ■

CAMP, A PLACE TO DREAM:
THE FRESH AIR FUND

STATEMENT OF

RICHARD J. HARRIS
CHEVRON U.S.A. INC.

ON BEHALF OF THE

WESTERN OIL AND GAS ASSOCIATION

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
U.S. SENATE

JUNE 16, 1987

WASHINGTON, D.C.

GOOD AFTERNOON, MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE, MY NAME IS RICHARD J. HARRIS. I AM MANAGER OF CONTRACTS FOR THE WESTERN REGION LAND DEPARTMENT OF CHEVRON U.S.A. INC.

TODAY, I AM APPEARING AS A MEMBER OF THE WESTERN OIL AND GAS ASSOCIATION. WOGA IS A TRADE ASSOCIATION WHOSE MEMBERS CONDUCT MUCH OF THE EXPLORATION, PRODUCTION, REFINING, TRANSPORTATION AND MARKETING OF PETROLEUM AND PETROLEUM PRODUCTS IN THE WESTERN UNITED STATES.

MANY OF WOGA'S MEMBERS HAVE BEEN HEAVILY INVOLVED IN CRUDE OIL AND NATURAL GAS EXPLORATION AND PRODUCTION IN FEDERAL WATERS OFF THE COASTS OF THE UNITED STATES. WE HAVE FOLLOWED THE ISSUE OF AIR QUALITY AND OCS DEVELOPMENT WITH EXTREME INTEREST.

S.235, AND ITS COMPANION BILL IN THE HOUSE OF REPRESENTATIVES H. R. 1764, PROVIDE THAT A SOURCE OF AIR POLLUTION LOCATED ON THE OCS MUST MEET "ALL THE REQUIREMENTS OF THE CLEAN AIR ACT THAT WOULD BE APPLICABLE TO SUCH SOURCE IF IT WERE CARRIED OUT IN THE STATE OR LOCAL JURISDICTION ADJACENT TO SUCH SOURCE." THE ADJACENT STATE OR ADJACENT LOCAL JURISDICTION IS THE JURISDICTION CLOSEST TO THE OCS SOURCE. FURTHER, THE BILLS PROVIDE THAT SUCH SOURCES MAY NOT PREVENT OR INTERFERE WITH THE ATTAINMENT OR MAINTENANCE OF ANY AIR QUALITY STANDARD ESTABLISHED BY ANY STATE OR LOCAL GOVERNMENT TO THE EXTENT THAT SUCH STANDARDS ARE

CONTAINED IN THE STATE IMPLEMENTATION PLAN. ALSO, THE BILLS REQUIRE THAT TO THE EXTENT PRACTICABLE AND FEASIBLE, COMPARABLE REGULATIONS SHALL BE APPLICABLE TO OCS AND SIMILAR NON-OCS SOURCES.

CURRENTLY, THE SECRETARY OF THE INTERIOR IS VESTED WITH THE AUTHORITY TO REGULATE AIR EMISSIONS FROM OCS SOURCES. UNDER THE OUTER CONTINENTAL SHELF LANDS ACT (43 U.S.C. 1331 ET SEQ.), THE SECRETARY MUST PRESCRIBE REGULATIONS WHICH "SHALL INCLUDE, BUT NOT BE LIMITED TO, PROVISIONS . . . FOR COMPLIANCE WITH THE NATIONAL AMBIENT AIR QUALITY STANDARDS PURSUANT TO THE CLEAN AIR ACT (42 U.S.C. 7401 ET SEQ.), TO THE EXTENT THAT ACTIVITIES AUTHORIZED UNDER THIS SUBCHAPTER SIGNIFICANTLY AFFECT THE AIR QUALITY OF ANY STATE." THESE REGULATIONS APPEAR AT 30 CFR SEC. 250.57 (1986).

WOGA MUST OPPOSE THESE BILLS FOR TWO IMPORTANT REASONS. WE BELIEVE THESE PROPOSALS WOULD RESULT IN OFFSHORE EMISSIONS BEING REGULATED BY ADJACENT LOCAL JURISDICTIONS, REGARDLESS OF HOW SUCH REGULATION WOULD AFFECT THE INTERPLAY BETWEEN ONSHORE AIR QUALITY AND EXPLORATION AND DEVELOPMENT OF OFFSHORE ENERGY. ALSO, THESE PROPOSALS WOULD UNDERMINE SIGNIFICANT JOINT EFFORTS, NOW UNDERWAY, AIMED AT GAINING A BETTER UNDERSTANDING OF HOW OFFSHORE EMISSIONS AFFECT ONSHORE AIR QUALITY AND ACHIEVING A PROPER BALANCE IN NEW OFFSHORE AIR QUALITY REGULATIONS.

AS TO THE FIRST POINT, WOGA OPPOSES THE INTENT OF THESE BILLS. WE THINK THIS LEGISLATION WOULD EFFECTIVELY SUBORDINATE THE FEDERAL OCS EXPLORATION AND DEVELOPMENT PROGRAM TO LOCAL CONTROL. THERE IS NOW A QUESTION ABOUT THE VALIDITY OF THE BALANCE STRUCK BY THE CURRENT LAW BETWEEN THE EXPLORATION AND DEVELOPMENT OF OCS RESOURCES ON THE ONE HAND AND ONSHORE AIR QUALITY ON THE OTHER. IT IS OUR POSITION THAT ONLY THOSE DEVELOPMENTS WHOSE AIR EMISSIONS SIGNIFICANTLY AFFECT ONSHORE AIR QUALITY SHOULD BE REGULATED, AND WE FULLY RECOGNIZE THE LEGITIMATE GOAL OF OTHERS THAT OCS EMISSIONS SHOULD NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE NATIONAL AMBIENT AIR QUALITY STANDARD. HOWEVER, THIS LEGISLATION DOES NOTHING TO BALANCE THESE COMPETING INTERESTS OR VIEWS. RATHER, IT SUBJECTS FEDERAL OCS ACTIVITIES TO LOCAL REGULATION REGARDLESS OF THE EFFECT ON AIR QUALITY OR THE DEVELOPMENT OF THE NATION'S OFFSHORE ENERGY RESOURCES.

IN CALIFORNIA, MORE THAN IN ANY OTHER AREA OF THE COUNTRY, THERE IS LITTLE, IF ANY UNIFORMITY OF LOCAL AIR QUALITY RULES FROM ONE JURISDICTION TO ANOTHER. AS A RESULT, SIMILARILY SITUATED PLATFORMS OR PLATFORMS WITH SIMILAR EMISSION POTENTIAL WOULD BE TREATED DIFFERENTLY DEPENDING UPON THE RULES OF THE ADJACENT JURISDICTION.

THE LEGISLATION IS OVERLY SIMPLISTIC. FOR EXAMPLE, THE REQUIREMENT THAT "ALL ACTIVITIES ON THE OCS MEET THE REQUIREMENTS

OF THE CLEAN AIR ACT THAT WOULD BE APPLICABLE TO SUCH SOURCE IF IT WERE CARRIED OUT IN THE STATE OR LOCAL JURISDICTION ADJACENT TO SUCH SOURCE", EFFECTIVELY RECLASSIFIES THE OCS FROM ITS EPA DESIGNATION OF "UNCLASSIFIED" TO EITHER "ATTAINMENT" OR "NON-ATTAINMENT", DEPENDING UPON THE CLASSIFICATION OF THE ADJACENT JURISDICTION. THIS OCCURS BECAUSE THE LEGISLATION TREATS EACH OCS FACILITY AS IF IT WERE LOCATED IN THE ADJACENT LOCAL JURISDICTION. LOCAL NEW SOURCE REVIEW RULES ARE WRITTEN TO ADDRESS FACILITIES PHYSICALLY WITHIN LOCAL BOUNDARIES. THESE RULES ARE NOT INTENDED TO COVER AND CANNOT FAIRLY REGULATE FACILITIES NOT LOCATED WITHIN THEIR BOUNDARIES. TO SIMPLY DEEM OTHERWISE BY STATUTE OVERLOOKS THIS CRITICAL REGULATORY ELEMENT. UNDER THESE CIRCUMSTANCES, IT IS POSSIBLE THAT OCS DEVELOPMENT COULD SLOW OR EVEN CEASE ALTOGETHER BECAUSE OF THE MANNER IN WHICH LOCAL RULES ARE WRITTEN OR ENFORCED. AT THIS POINT, WE STRESS THAT EVEN THOUGH THE BILLS ARE AIMED AT CALIFORNIA, THEY CLEARLY APPLY TO GULF OF MEXICO OPERATIONS AS WELL.

WOGA HAS ALWAYS SUPPORTED THE PROPER REGULATION OF AIR EMISSIONS FROM OCS SOURCES. PROPER REGULATION IS DERIVED FROM A HEALTH BASED EVALUATION OF THE AIR QUALITY AND AN APPROPRIATE BALANCE OF THE NATIONAL PRIORITIES. WE DO NOT SUPPORT REGULATION FOR REGULATION'S SAKE, WHICH APPEARS TO BE THE EFFECT OF THESE BILLS.

SECONDLY, WOGA OPPOSES THESE BILLS BECAUSE OF THEIR UNTIMELY INTRODUCTION. AS YOU MAY KNOW, THE DEPARTMENT OF THE INTERIOR (MMS), THE ENVIRONMENTAL PROTECTION AGENCY, THE CALIFORNIA AIR RESOURCES BOARD, THE AIR POLLUTION CONTROL DISTRICTS OF SAN LUIS OBISPO COUNTY, SANTA BARBARA COUNTY AND VENTURA COUNTY AND THE WESTERN OIL AND GAS ASSOCIATION HAVE JOINED TOGETHER IN THE SOUTH CENTRAL COAST COOPERATIVE AEROMETRIC MONITORING PROGRAM (SCCCAMP). THIS FOUR YEAR, $4 MILLION SANTA BARBARA CHANNEL METEOROLOGICAL PROGRAM, IN PART FUNDED BY CONGRESS, IS DESIGNED TO PROVIDE POLICY MAKERS WITH A BETTER TECHNICAL BACKGROUND TO UNDERSTAND AIR MOVEMENT ALONG THE CENTRAL CALIFORNIA COAST AND THE EFFECTS OF AIR EMISSIONS FROM OCS SOURCES.

AS YOU MAY ALSO KNOW, A NEGOTIATION PROCESS TO DEVELOP AIR POLLUTION CONTROL RULES FOR FACILITIES IN THE CALIFORNIA OCS HAS BEEN UNDERWAY FOR ABOUT A YEAR. TAKING PART IN THESE NEGOTIATIONS ARE THE WESTERN OIL AND GAS ASSOCIATION, LOCAL COASTAL COMMUNITIES (USUALLY REPRESENTED BY THEIR AIR POLLUTION CONTROL DISTRICTS), THE CALIFORNIA AIR RESOURCES BOARD, THE GOVERNOR'S OFFICE, THE CALIFORNIA COASTAL COMMISSION, THE DEPARTMENT OF THE INTERIOR, THE MINERALS MANAGEMENT SERVICE, THE ENVIRONMENTAL PROTECTION AGENCY, THE OFFICE OF MANAGEMENT AND BUDGET, THE DEPARTMENTS OF ENERGY AND JUSTICE AND A COALITION OF ENVIRONMENTAL GROUPS. THIS PROCESS IS INTENDED TO DEVELOP RULES THAT WILL SERVE TO GUIDE THE AIR POLLUTION REGULATORY PROGRAM FOR

THE CALIFORNIA OCS AND TO REPRESENT A CONSENSUS AMONG INDUSTRY, REGULATORY AGENCIES AND THE LOCAL COMMUNITIES.

BOTH SCCCAMP AND THE NEGOTIATED RULEMAKING REPRESENT THE TYPE OF COOPERATIVE EFFORTS NEEDED TO SOLVE A COMPLEX PROBLEM THICK WITH POLITICAL AND TECHNICAL CONSIDERATIONS. SCCCAMP BRINGS TOGETHER AFFECTED TECHNICAL EXPERTS TO BUILD THE PROPER BASIS FOR A SCIENTIFIC EXAMINATION OF THE ISSUE. THE NEGOTIATED RULEMAKING BRINGS TOGETHER ALL AFFECTED PARTIES TO DESIGN A REGULATION WHICH BALANCES THE NEEDS OF THE PARTIES.

THIS LEGISLATION COULD UNDERMINE BOTH THESE EFFORTS. IF THE LOCAL RULES WERE USED, AS REQUIRED BY THESE BILLS, THE ENTIRE SCCCAMP EFFORT WOULD BE JEOPARDIZED. THE GOAL OF SCCCAMP IS TO BE ABLE TO PROPERLY CONDUCT PHOTOCHEMICAL GRID MODELLING FOR REACTIVE PRECURSORS TO OZONE IN PROJECT SPECIFIC APPLICATION. MANY LOCAL JURISDICTIONS DO NOT USE MODELLING IN PROJECT PERMITTING. HENCE, THE REASON FOR SCCCAMP DISAPPEARS.

IN THE SAME VEIN, THIS LEGISLATION WOULD REMOVE THE INCENTIVE LOCAL COASTAL COMMUNITIES AND ENVIRONMENTAL GROUPS HAVE TO NEGOTIATE. THEIR STRATEGY WOULD BE TO MARK TIME IN THE NEGOTIATIONS AND WAIT FOR THIS LEGISLATION TO BECOME LAW.

THE KEY TO SOLVING THE AIR QUALITY DILEMMA IS TWO-FOLD. FIRST, THE EFFORTS NOW UNDERWAY TO DEVELOP A CONSENSUS ON THE TECHNICAL EVALUATION OF ADJACENT STATE AIR QUALITY MUST BE ALLOWED TO CONTINUE. MOREOVER, A CONSENSUS ON THE PROPER BALANCE BETWEEN AIR QUALITY REGULATION AND OCS DEVELOPMENT MUST BE REACHED. SECOND, THE INCENTIVE AND ABILITY TO PROPERLY ASSESS THE CONTRIBUTION OF OCS EMISSIONS TO THE AIR QUALITY SITUATION ONSHORE MUST BE PRESERVED. THIS IS PARTICULARLY IMPORTANT DUE TO THE UNIQUE METEOROLOGICAL CHARACTERISTICS AND LEVELS OF OCS ACTIVITY FOUND IN THE VARIOUS OFFSHORE AREAS.

IN SUMMARY, THESE BILLS ARE SIMPLY NOT NECESSARY. AT BEST, THEY CREATE CONFUSION AND UNCERTAINTY WHICH WILL COMPLICATE EFFORTS TO CONDUCT AN ACCURATE ASSESSMENT OF CALIFORNIA'S COASTAL AIR QUALITY AND UNDERMINE THE ATTEMPT, NOW UNDERWAY, TO NEGOTIATE A PROPER LEVEL OF REGULATION. AT WORST, THESE BILLS WOULD PROVE TO BE UNWORKABLE, FRUSTRATING OF THE NATIONAL GOAL OF DEVELOPING OCS RESOURCES WHILE ACHIEVING NO BENEFITS TO AIR QUALITY.

THANK YOU VERY MUCH FOR YOUR ATTENTION. I'D BE HAPPY TO ANSWER ANY QUESTIONS YOU MIGHT HAVE.

STATEMENT OF CONGRESSMAN ROBERT E. BADHAM

THE SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

SUBCOMMITTEE ON THE ENVIRONMENT

JUNE 16, 1987

Mr. Chairman and Members of the Committee:

I appreciate the opportunity to submit testimony today on legislation (S. 235 and H. R. 1764) that both Senator Wilson and I introduced to address the issue of air quality as it relates to oil and gas operations on our nation's outer continental shelf.

For years now, Senator Wilson and I have been actively involved with the Interior Department in trying to negotiate a sensible oil leasing plan for the State of California which adequately addresses the necessity to develop this potentially significant energy resource while still providing adequate safeguards for the environment - namely our State's air quality. Since Southern California has one of the most critical air pollution problems in the nation, we have reached a point in our discussion over the future of OCS activities where the impact of additional emissions from offshore operations can no longer be ignored. Federal regulations governing air quality from offshore oil develpment must be consistent with pollution control standards onshore.

Currently, the Outer Continental Shelf Lands Act of 1978 calls on the Interior Department to regulate offshore oil and gas emissions only to the extent that they "significantly affect" onshore air quality. This mandate assumes that any pollutants emitting from offshore oil production facilities would only have a minimal impact on the air quality onshore. This assumption may hold true for oil platforms that are located many miles offshore, but that isn't the case for those platforms located as close as three miles from the coast.

In fact, recent studies have demonstrated that emissions from offshore production do impact onshore air quality and interfere with the attainment and maintenance of Federal and State ambient air quality standards onshore. For example, a Joint Interagency Modeling Study was conducted in Santa Barbara County showing that the air quality impact from OCS activities exceeded the the national ambient air quality standard for ozone by 10%. As the EPA considers this to be a significant increase in ozone levels, it has required the South Central Coast Air Basin to address the onshore ozone air quality impacts of OCS activities in its revised State Implementation Plan.

So far, the Interior Department's involvement in regulating air quality on the outer continental shelf has just not been adequate. In fact, the Department's exclusive authority often comes in direct conflict with the onshore agencies' authority and responsibility to assure onshore air quality; this allows OCS facilities to escape controls imposed on onshore sources. A perfect example of this double standard is when Exxon decided to move its processing facility 3.1 miles offshore (just .1 miles outside California State waters) to escape the stringent air quality requirements imposed by Santa Barbara County for its onshore facilities. By keeping its production operations completely offshore, Exxon need only meet the less burdensome and less expensive Interior Department air standards.

The legislation that Senator Wilson and I introduced is intended to eliminate this double standard and ensure the proper control of emissions from offshore activities by transfering the authority to regulate OCS air quality standards from the Department of Interior to the Environmental Protection Agency, where it belongs. Since the EPA is the Federal agency responsible under the Clean Air Act for the control of air quality onshore, including emissions from oil platforms within the three mile limit, it is only logical to allow the EPA to control air quality beyond those State waters. Giving the EPA that responsibility will eliminate any conflict of interest between the Interior Department's mandate to develop offshore oil reserves and its duty to regulate offshore air pollution.

Mr. Chairman, in my opinion it is a matter of fairness. When onshore industry is subjected to stringent air quality requirements such as the applicability of Best Available Control Technology (BACT), modeling of impacts, and emission mitigation, it is simply not right for the offshore industry to escape these requirements - especially in light of the proven adverse impact of emissions from offshore activities on onshore air quality. Furthermore, as December 31, 1987, is the target date for attainment of the national ambient air quality standards for ozone and carbon monoxide, many states, including California, face punitive action for failing to meet these standards under the Clean Air Act. If OCS air impacts are not properly mitigated, onshore industrial sources may be subjected to the burden of further controls or even a halt on future construction. Possible EPA penalties may also include sanctions on Federal funding for highway and sewage programs.

As it stands now, the Interior Department is proceeding with its five-year OCS nationwide plan but, to date, has not developed appropriate regulations and lease conditions to ensure that such activity will not interfere with the attainment and maintenance of all Federal and State ambient air quality standards. The Interior Department defends its position by pointing to the current negotiated rulemaking process as a forum for addressing the air pollution concerns created by OCS development. While I hope that the negotiators will succeed in coming up with a viable plan, it is important to note that any plan requires the consensus of all the parties involved, including DOI, the oil companies, and environmental groups. Having been involved in extensive consultations with the Interior Department over the OCS issue, I think it is fair to say that it is unlikely that a satisfactory rule will result from the negotiations.

Mr. Chairman, it is widely recognized that Southern California's air pollution situation is the worst in the nation. Solving the air quality problem in our State is a complex and difficult matter. But, to prevent its further degradation, we need to make sure that the air quality standards applied to offshore sources be just as strict as those imposed onshore. And, the EPA is best suited to oversee this important undertaking.

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State of California
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John K. Van de Kamp
Attorney General

June 5, 1987

Honorable George Mitchell, Chairman
Subcommittee on Environmental Pollution
Committee on Environment and Public Works
456 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Senator Mitchell:

Senate Bill 235--Outer Continental Shelf Air Pollutant Emissions

We wish to thank you for scheduling this hearing and for giving us an opportunity to present our views in support of S. 235. These comments are submitted pursuant to the California Attorney General's independent authority to represent the People of the State of California and to protect the resources of the State.

Our position on S. 235, which is discussed in more detail below, can be summarized as follows:

1. California suffers from severe air quality problems, and air pollutant emissions from OCS facilities significantly contribute to those problems;

2. In 1978, when it enacted section 5(a)(8) of the Outer Continental Shelf Lands Act, Congress intended that the Department of the Interior would take effective steps to control air pollution from OCS facilities;

3. In the nearly 10 years that it has had federal regulatory authority over OCS air pollution, Interior has failed to implement its congressional mandate;

4. Although Interior's inadequate OCS air regulations have forced state and local governments to seek alternative avenues to control OCS air pollution, the federal government is now attempting to block those avenues by arguing that those regulations are exclusive; and

5. Transferring to EPA the federal regulatory authority over OCS air pollution will place federal jurisdiction in the agency which has air pollution control expertise and will result in a more equitable treatment of onshore and OCS air pollution sources.

California has a Severe Air Pollution Problem

As you are no doubt aware, many parts of California suffer from severe air pollution problems, and at the end of 1987, at least some portions of the State will fail to achieve the standards set under the Clean Air Act. Indeed, the Environmental Protection Agency has announced that it will soon begin the process of imposing economic sanctions on some parts of California. It is important to understand that these air pollution problems exist both in coastal areas such as Santa Barbara County and in more inland and industrialized areas.

With regard to coastal areas, the California Air Resources Board has determined that air pollutant emissions from facilities engaged in Outer Continental Shelf ("OCS") activities offshore California can seriously impact onshore air quality. It is because of these serious impacts, and because the Department of the Interior has historically been unwilling to mitigate them, that passage of S. 235 is important.

Interior has Failed to Implement Its Congression Mandate

Before discussing S. 235, we wish to provide to the subcommittee some background on our troubled relationship with Interior on this subject. In 1978 Congress enacted comprehensive amendments to the OCS Lands Act. While these amendments were intended to achieve many goals, one of their goals was to ensure that OCS development occurred only in an environmentally sound fashion. In light of this goal, and in recognition of the fact that OCS development would seriously impact onshore air quality--especially California's air quality--Congress added section 5(a)(8) to the OCS Lands Act. This provision directed the Secretary of the Interior to adopt regulations which would protect onshore air quality from the effects of OCS development.

Despite Congress' clearly expressed intent that Interior take effective steps regarding OCS air pollution, we have been engaged in a constant struggle to convince Interior to do as Congress directed. California participated extensively in the rulemaking process which resulted in Interior's current regulations and provided Interior with detailed comments and criticisms on its proposals. Ultimately, Interior adopted thoroughly inadequate regulations which would not, and do not, protect California's air quality from OCS pollution. Because of the deficiencies in these regulations, the Governor of California and the Air Resources Board were forced to sue Interior in an attempt to obtain more effective regulations. That lawsuit is still pending.

Interior itself has on several occasions indicated, at least implicitly, that its regulations are not sufficient. For example, for OCS Lease Sale 73 (Central California) in 1983, Interior negotiated a series of more stringent air quality stipulations which were imposed on the successful bidders for leases. Similarly, Interior published an advance notice of proposed rulemaking for the OCS offshore California in which it indicated an intention of adopting new air quality regulations for this area. Finally, as we discuss in more detail below, Interior has entered into a negotiated rulemaking involving many interested parties in the search for more acceptable air quality regulations.

However, if a project arises outside of the Sale 73 air quality stipulations, and must be reviewed now for its compliance with air quality standards, Interior still applies its existing regulations despite their inadequacies. For example, Exxon is attempting to obtain the approvals necessary for it to proceed with development of the Santa Ynez Unit on the OCS in the Santa Barbara Channel. The final environmental impact statement prepared on this project demonstrated that it would, by itself, cause areas of Santa Barbara County to exceed the federal standards for ozone. These violations were predicted to occur despite the project's compliance with Interior's regulations. The environmental impact statement also identified mitigation measures which would have reduced the impacts of this project, but Interior relied on its regulations and refused to impose any of the mitigation. Thus, Santa Barbara County has been forced to sue Interior in an attempt to have that agency mitigate the project's impacts.

Interior is Attempting to Bar State and Local Authorities From Using Alternative Approaches to Controlling OCS Air Pollution

Because Interior has been steadfast in refusing to mitigate adequately the air quality impacts of OCS projects, the California Coastal Commission has had to turn to this issue. The Coastal Commission plays a role in this process because OCS projects must demonstrate consistency with California's federally-approved coastal management program ("CCMP") before Interior can issue its permits. (See 16 U.S.C. §1456(c)(3)(B).) As required by the federal Coastal Zone Management Act, the CCMP incorporates the state's air quality program (see 16 U.S.C. §1456(f)), and thus, the Coastal Commission must determine whether OCS projects are consistent with these air quality provisions. It is because of this role, that the Coastal Commission has obtained a number of mitigating measures for OCS projects. However, the federal government has now filed an amicus curiae brief in a federal court case in San Francisco arguing that Interior's regulations are exclusive and that they preempt consistency review by the Commission. (Exxon v. Fischer, Northern District of California No. C-83-3911 SC.) The government's express purpose is to prevent the Commission from obtaining more stringent air pollution control measures for OCS projects than would be required by Interior's regulations.

Similarly, Exxon sued Santa Barbara County because the County considered OCS emissions in developing permit conditions which were to be imposed on an onshore facility. (Exxon v. County of Santa Barbara, Central District of California No. Civ. 84-8561.) Exxon has argued that Interior's regulations preempt the County from considering OCS emissions, even for purposes of permitting an onshore facility. We have been informed recently that the federal government plans to file an amicus curiae brief in this case in support of Exxon's position. Such a brief would be particularly surprising because EPA has been telling the County for several years that it must take OCS emissions into account in its air quality planning. (Attached hereto are several letters which EPA has sent to the County on this subject.)* Apparently the federal government wants those emissions taken into account but only for the purpose of imposing more severe controls on onshore industries not related to OCS development.

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*The letters referred to have been retained in committee files.

The above background gives you some idea of the problems which California has faced because Interior was given responsibility for protecting onshore air quality. The simple truth is that Interior finds effective air quality controls to be incompatible with what it perceives to be its primary objective, i.e. development of OCS oil and gas resources as rapidly as possible. Because Interior viewed its role in this fashion, and because Interior is not at all expert in air quality matters, we believe that legislation such as S. 235 is necessary.

S. 235 is an Appropriate Response to This Problem

In our view, placing the authority to deal with these measures in EPA will reduce the problems we have been experiencing. This is so for several reasons. First, EPA is the Nation's air quality agency and of all the agencies in the federal government, it is the one with air quality expertise. There simply can be no dispute that EPA possesses expertise in areas such as air quality impacts and control which far exceeds the expertise of Interior.

Second, EPA already has the responsibility for protecting onshore air quality. It seems very inefficient to split air quality authority between the OCS and onshore areas when the goal is to both protect and enhance onshore air quality. Because EPA has already developed detailed strategies for addressing air quality problems, why not have those strategies apply to facilities three miles from shore just as they apply to facilities onshore. This is especially the case for California because air pollutants produced on the OCS are blown onshore and directly contribute to our air pollution problems. Because OCS operators are a part of the problem, they should also be a part of the solution.

Third, S. 235 mandates that OCS sources meet all the requirements which they would have to meet if they were onshore. This provision will ensure that OCS sources and onshore sources receive comparable treatment so that OCS sources will no longer receive a free ride at the expense of the public health and economy onshore. Such equitable treatment is what EPA advocated several years ago in comments submitted on Interior's advance notice of proposed rulemaking for the California OCS.

We anticipate that Interior and others will raise a number of objections to S. 235. First, Interior may well argue that because of its regulatory authority over other aspects of OCS development, it should retain authority over the air quality aspects as well. This argument ignores several key facts. Interior has had this control for nearly 10 years and has been unable to deal effectively with the problems posed by OCS air pollution. Also, the mere fact that Interior regulates some aspects of OCS development has never meant that it must control all aspects. For example, Interior does not assert that it should regulate tanker safety on the OCS. Instead, it leaves this function to the Coast Guard which is the federal agency with the most expertise. Similarly, control of OCS air pollution should be given to EPA as the federal agency with the most expertise.

Second, Interior may argue that to give this authority to EPA will result in a delay in OCS development because more stringent air pollution control measures will be required. As we noted at the beginning of this letter, Congress never intended that OCS development occur regardless of all other values. In particular, Congress never indicated that OCS development should proceed in a fashion which puts the public health at risk or which imposes a huge burden on the economy of onshore areas. It must be remembered that in the Clean Air Act, Congress expressed an unmistakable intent that the quality of the Nation's air be protected and enhanced. This goal is hardly less worthy than the goal of producing our OCS oil and gas reserves.

Third, Interior may argue that congressional action now is premature because the negotiated rulemaking is still proceeding and that procedure should not be jeopardized. We agree that Congress should take the negotiated rulemaking into account in reviewing this matter. If that negotiation results in agreement among the participants (who include representatives of Interior and other federal agencies, state agencies, local air pollution control districts, the oil industry and environmental groups), then many of the reasons for this legislation may be eliminated. However, we have no guarantee now of success for these negotiations. We do know that they should conclude within the next several months. While they may be completely successful, partially successful, or fail totally, their mere pendency should not keep Congress from beginning to consider the issues raised by Interior's role in air quality control. By beginning now to give serious consideration to these issues, Congress will be ready to act in the event that the negotiations should fail. Finally, even if the negotiations should succeed and result in a consensus on new regulations, Congress should consider whether EPA might not be in a better position to enforce those regulations. Interior's past actions in this area have not left many Californians willing to trust that Interior will properly implement new regulations. All involved might be more confident of their proper implementation if that task rested with EPA.

Finally, there is one point to which Congress should be sensitive. As we noted above, the federal government has begun asserting that Interior's present regulations completely preempt the ability of local governments to consider OCS air pollution in permitting an oil company's onshore facility and the ability of coastal agencies to consider air pollution in determining consistency with approved state coastal programs. We believe that these positions are without merit under the current state of the law. However, if Congress were to state unequivocally that there is no preemption, the situation would be made simpler and we would be relieved of having to litigate these matters continually.

Once again, I wish to thank you, Senator Mitchell, and the Subcommittee, for the opportunity to make these comments for the record. We believe that this legislation is important for California and for other parts of the country, and we hope you will give it favorable and expeditious treatment.

Sincerely,

JOHN K. VAN DE KAMP
Attorney General

Enc.

cc. Honorable Pete Wilson
Honorable Alan Cranston
Honorable Leon Panetta
Jananne Sharpless
Peter Douglas
William Wallace

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
Department of Environmental Quality Engineering
Division of Air Quality Control
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S. RUSSELL SYLVA
Commissioner

June 26, 1987

Senator George Mitchell
Committee on Environment and Public Works
Subcommittee on the Environment
Washington, D.C. 20510-6175

Dear Senator Mitchell:

Enclosed please find responses to the questions from you and Senator Chaffee to NESCAUM and Massachusetts on Ozone and the Clean Air Act reauthorization as a result of my recent testimony before your Subcommittee.

I trust we have responded adequately. Should you, members of the Subcommittee or staff require further information, please contact me.

Very truly yours,
Bruce K. Maillet
Bruce K. Maillet, Director
Division of Air Quality Control

BKM/bak/ed
Enclosures
cc: Michael Bradley, NESCAUM

QUESTIONS FROM SENATOR MITCHELL - MASSACHUSETTS RESPONSE

1. What control strategies have you put in place in your region?

   Massachusetts has adopted and implemented all applicable CTGs issued by the U.S. Environmental Protection Agency (EPA); Transportation Control Measures; a statewide decentalized automobile emissions inspection and maintenance (I/M) program; and New Source Review. The Commonwealth regulates all its 100 TPY or greater sources, not covered by a CTG, under a generic 100 TPY RACT regulation; such sources with a "potential to emit" greater than 100 TPY, but with actual emissions historically always below 100 TPY, are controlled by permits to restrict emissions. Despite demonstrating attainment with the controls identified in the Massachusetts 1982 SIP document, the Commonweath committed to adopt and implement all CTGs subsequently issued by EPA.

2. What control strategies were rejected and why?

   Three EPA-issued Group III CTG's were not implemented because Massachusetts had no applicable sources; the categories are petroleum-based dry cleaners, volatile organic compound equipment leaks from natural gas/gasoline processing plants, and air oxidation processes in synthetic organic chemical manufacturing industry. Stage II controls were not adopted inasmuch as attainment was sufficiently demonstrated without the estimated emission reductions associated with this strategy; this was considered to be a contingency measure. Controls on sources, most appropriately applied nationally, e.g., architectural/coatings, consumer/commercial/industrial solvents, on-board controls, were also rejected.

3. What has been the greatest impediment to your ability to reduce emissions in order to reach attainment?

   Atmospheric transport plays a key role in the ozone problem within the northeast states, including Massachusetts. The very nature of this pollutant and the continuing scientific uncertainties regarding its formation make it an exceedingly difficult pollutant to control.

   The fact that a state has to rely on effective regulatory control of precursor emissions in geographic areas outside its own political jurisdiction as part of a strategy to ensure in-state standard attainment is another particularly difficult regulatory feature of dealing with this pollutant.

It presumes a consistent application of the controls state-by-state and, even more importantly, a consistent federal oversight role by and between EPA Regional Offices. This consistency has been absent (see attachment No.1).

Increases in the gasoline volatility between 1980 and now is counter productive to a goal of emission reductions. This is particularly signifcant, given the large relative contribution of motor vehicle emissions to the problem both in 1980 and now. Corresondingly, EPA's failure to issue CTG's and other national guidance and its inability to make a timely decision on on-board evaporative emission controls vs Stage II vapor recovery requirements have been counter productive to the 1977 Clean Air Act Amendments' goal of expeditious standard attainment.

4. What are the major sources of air pollution in your region?

The absolute and relative contribution of precursor volatile organic compound emissions by source category in Massachusetts is presented in the following table for calendar years 1980 and 1985.

	1980		1985	
Source Category	Kg/Day	% of Total	Kg/Day	% of Total
Point	144,036	22.0	118,466	23.0
Area	268,556	34.0	233,559	46.0
Mobile	341,307	44.0	157,159	31.0
Total	783,908		509,184	

The 1985 emissions reflect the impact of the controls adopted and implemented in Massachusetts, as specified in the response to question one. The increasingly major category of VOC emissions in Massachusetts is area sources (e.g., consumer and commercial solvent use, architectural coatings, motor vehicle refueling). Mobile sources, despite an over 50% reduction in emissions since 1980, achieved by the Federal Motor Vehicle Emission Control Program and the statewide I/M program still contribute nearly one-third of the total existing emissions; these emissions remain a major contributor to ozone as well as other air pollution Point sources, especially those for which CTGs's have not been issued and those less than 100 TPY, contribute to the problem, but to a much lesser degree; their contribution as of 1985 was only 23%.

5. What percentage of emissions are from mobile sources? What percentage are from regional transport?

As of 1985, mobile source emissions in Massachusetts represented 31% of the total statewide VOCs. Their absolute and relative contribution is, in reality, greater since the 1985 mobile source emission calculations relied on mobile emission factors based on a Reid Vapor Pressure of 9.0 psi, instead of the actual 11.5 psi Read Vapor Pressure of gasoline marketed in-state.

The percentage of emissions from regional transport cannot be calculated. We do not have the tools available; the Northeast Corridor Modeling Project (NECRMP) would have provided insight into this issue but was dropped by EPA in FY '1984. (NECRMP is a regional computer model designed to estimate ozone/ozone precursor transport across state boundaries and to analyze the effectiveness of ozone control strategies within the Northeast region. See NESCAUM response to Questions from Senator Mitchell). We do know that in recent years our highest levels of ozone monitored in-state generally tend to be along the state's southern/downwind border and that ozone levels are elevated when the winds are from the southwest.

6. When do you believe your region will reach attaintment?

The issue of when Massachusetts will attain the ozone standard is currently under litigation as part of the Conservation Law Foundation's suit against the Commonwealth (Conservation Law Foundation v. Commonwealth of Massachusetts, CA 87-0651-D CD, Mass) and the U.S. Environmental Protection Agency on the adequacy of the Massachusetts State Implementation Plan. It is Massachusetts' position that its SIP is adequate in demonstrating standard attainment. The SIP was developed in accordance with the requirements of the 1977 Clean Air Act Amendments, and it has been approved by EPA. Massachusetts has adopted and implemented all applicable controls and has achieved the actual annual emission reductions, needed to achieve standards according to the EPA accepted method of analyzing and demonstrating attainment.

7. What additional control measures will be necessary for you to reach attainment?

Massachusetts endorses the NESCAUM (Northeast States Coordinating for Air Use Management) and STAPPA (State and Territorial Air Pollution Program Administrations) post -87 ozone strategies. See attached No. 2 and No. 3

8. What other efforts would have been necessary for you to reach attainment of the deadlines?

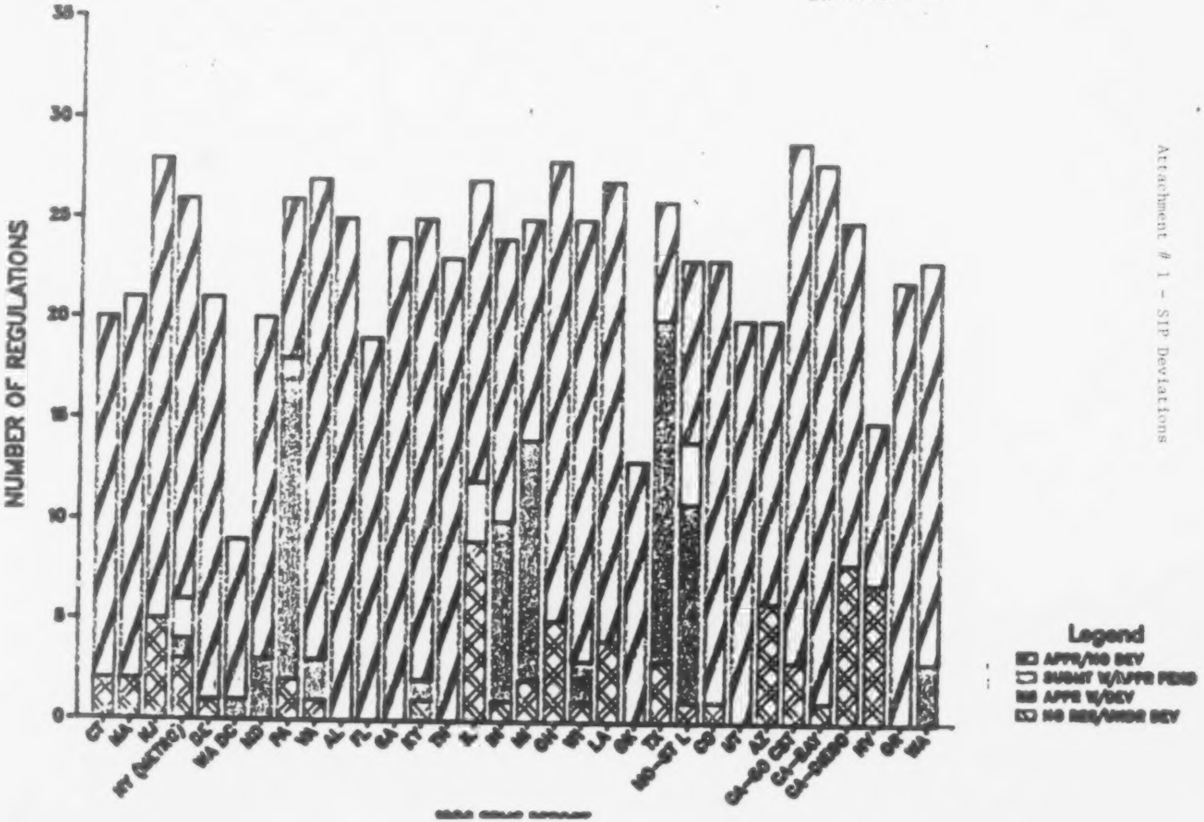
As indicated in our response to question six, the issue of ozone standard attainment in Massachusetts is now being litigated. See our responses to questions 6 and 7.

Attachment # 1 - SIP Deviations

5/86

STATUS OF GROUP I, II, III CTG REGULATIONS

Extension States.



GROUPS I, II, III CTG STATUS

State	No Regulation or Vendor Development Required	Approval with Deviation	Submittal to EPA Approval Pending	Approved No Deviation
Connecticut	2	0	0	18
Massachusetts	2	0	0	19
New Jersey	5	0	0	23
New York (Metro)	3	1	2	20
Delaware	1	0	0	20
Washington D.C.	0	1	0	8
Maryland	0	3	0	17
Pennsylvania	2	15	1	8
Virginia	1	2	0	24
Alabama	0	0	0	25
Florida	0	0	0	19
Georgia	0	0	0	24
Kentucky	1	1	0	23
Tennessee	0	0	0	23
Illinois	9	0	3	15
Indiana	1	9	0	14
Michigan	2	12	0	11
Ohio	5	0	0	23
Wisconsin	1	2	0	22
Louisana	4	0	0	23
Oklahoma	0	0	0	13
Texas	3	17	0	6
Missouri - St. L	1	10	3	9
Colorado	1	0	0	22
Utah	0	0	0	20
Arizona	6	0	0	14

GROUPS I, II, III CTG STATUS (CON'T)

State	No Regulation or Vendor Development Required	Approval with Deviation	Submittal to EPA Approval Pending	Approved No Deviation
California - SC	3	0	0	26
Calif - Bay Area	1	0	0	27
Calif - San Diego	8	0	0	17
Nevada	7	0	0	8
Oregon	0	0	0	22
Washington	0	3	0	20

STATE	REGS UNDER DEVELOPMENT	NO REGS	APPR W/APPARENT DEVIATIONS	DEVIATIONS
CT	1. High-density resins 2. SOCMI fugitives			
MA	1. High-density resins 2. SOCMI fugitives			
NJ	1. Lge Pet. Drycl. 2. High-density resins. 3. Nat. gas/gas proc. 4. SOCMI fugitives 5. SOCMI air oxid.			
NY METRO		1. Nat. gas/gas proc 2. SOCMI fugitives 3. SOCMI air oxid.	1. Perc. dry clean.	
DE	1. SOCMI air oxid.			
WA DC		1. Perc. dry cl.		
MD			1. Perc. dry cl. 2. Gas load. term. 3. Stage I	<55 gal/mo perc. exemp. existing systems <40,000 gal/day exemp. thrup. - new systems < 20,000 gal/day thrup. <20,000 gal/mo avg. thrup. exemp.
PA	1. Lge pet. dry cl. 2. SOCMI air oxid.		1. Auto & lght duty trucks, cans, coils, paper, fabric, met. furn., lge. appl., mag wire, misc. met. pts.	≤ 500 lbs/day or 50 TPY exemp.

STATE	REGS UNDER DEVELOPMENT	NO REGS	APPR W/APPARENT DEVIATIONS	DEVIATIONS
PA (CON'T)			2. Graphic arts	<1000 lbs/day or 100 TPY exemp.
			3. Pharmac. mfg.	<50 TPY exemp.
			4. Rubber tire	<5000 tires/day & emit <100 TPY exemp.
			5. Perc. dry cl.	<100 TPY exemp.
			6. Gas tank trucks	trucks with <4800 gal capacity exemp. from subsec. (c) & (d) of reg.
VA		1. SOCMI air oxid.	1. Auto & lght. trucks	topcoat ems. lmt. not RACT 4.8#/gal less H_2O
			2. Stage I	total avg. thrup. <20,000 gal/mo exemp.
IL	1. Misc. met pts. 2. Pharmac. mfg. 3. Graphic arts 4. Pet. in float. roof tnks. 5. Gas tnk. trucks 6. Lge. pet. dry cl. 7. High-density resins 8. SOCMI fugitives 9. SOCMI air oxid.			
IN		1. Perc. dry cl.	1. Auto & lght. trucks, cans, coils, paper, magnet wire, met. furn., solv. met. clean.	<100 TPY exemp.
			2. Bulk plnts. 3. Stage I	req. subm. fill <20,000 gal/mo thrup. exemp.

STATE	REGS UNDER DEVELOPMENT	NO REGS	APPR W/APPARENT DEVIATIONS	DEVIATIONS
MI	1. High-density resins 2. Nat. gas/gas proc.		1. Stage I 2. Surf. Coat. regs.	<250,000 gal/yr exemp. Allow transfer eff. credit
OH	1. Lge. Pet. Drycl. 2. High-density resins 3. Nat. gas/gas proc. 4. SOCMI fugitives 5. SOCMI air oxid.			
WI		1. SOCMI fugitives	1. Stage I 2. Bulk plnts.	only req. during ozone season loading & storg. -- >350,000 gal/yr exemp. -- 3 yr avg. unload., loading storg. -- >1,000,000 gal/yr exemp. -- 3 yr avg.

Attachment # 2 - NESCAUM Post-87 Ozone Policy

NORTHEAST STATES FOR COORDINATED AIR USE MANAGEMENT
(NESCAUM)

MEMBERS:
CONNECTICUT AIR COMPLIANCE UNIT
MAINE BUREAU OF AIR QUALITY CONTROL
MASSACHUSETTS DIVISION OF AIR QUALITY CONTROL
NEW HAMPSHIRE AIR RESOURCES AGENCY
NEW JERSEY BUREAU OF AIR POLLUTION CONTROL
NEW YORK DIVISION OF AIR RESOURCES
RHODE ISLAND DIVISION OF AIR RESOURCES
VERMONT AIR & SOLID WASTE PROGRAM

NESCAUM OZONE STRATEGY

March, 1986

The NESCAUM States unanimously support a National Ozone Strategy which would require all 1982 extension states which will not attain the ozone NAAQS by 1987 to implement a "Basic Control Package." The Basic Control Package is comprised of two major strategy categories; those which are the responsibility of the Federal government (U.S. EPA) and those strategies which require joint Federal/State actions. The majority of the Federal/State intiatives should have been required and implemented in post-1982 extension States. However, in many cases either these initiatives were not required by EPA or were not fully implemented. If EPA and the States are seriously committed to expediously attaining the ozone NAAQS then acting aggressively on both the Federal and Federal/State strategies is essential.

NESCAUM proposes that advanced control strategies be required of States which are unable to demonstrate attainment with the full implementation of the Basic Control Package and where the transport of ozone and ozone precursors into the State are being effectively addressed. Implementation of the advanced control strategies is conceptually very similar to the Reasonable Efforts Program developed by EPA's Region IX Office for Southern California. NESCAUM envisions that if reductions are required beyond those obtained with the Basic Control Package that the State would select the necessary advanced strategy or a combination of strategies to demonstrate ozone attainment.

Major issues of concern to the NESCAUM States include:

1. Equity

A basic premise that should be applied by EPA to all States is the development of a technically credible ozone SIP. A SIP must be based on the most up-to-date emissions inventory, demographic information and conservative assumptions. EPA should critically review all current State Control Technique Guideline (CTG) deviations, and require revisions to upgrade requirements which are equivalent to the Federal CTG Regulations. EPA should no longer allow Control Technique Guideline (CTG) deviations which are not technically justified, eliminate

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accommodative SIPs by requiring offsets for emission growth and aggressively enforce the 5% rule. The 5% rule requires that State applied RACT regulations achieve emission reductions within 5% of the emission reductions a CTG "model regulation" would have achieved for the same source category.

2. Resource Allocation
EPA and States must decide which reduction strategies will be most profitable in terms of agency resources expended versus emission reductions achieved. New strategies (i.e. lower RACT cutoffs) geared to ratcheting down on existing controlled stationary sources will require a large resource expenditure for a rather minimal net emission reduction. Alternatively, emphasis should be directed at ensuring that stationary and mobile source strategies contained in the Basic Control Package are effectively implemented and enforced.

3. Regional Oxidant Model
The transport of ozone and ozone precursors is a recognized phenomenon. Completion of the Oxidant Model for the New York Metropolitan Area Project (OMNYMAP) is a top priority for NESCAUM. In addition, completion of the Regional Oxidant Model (ROM) for the Northeast corridor will help document the contribution of ozone precursors into and along the corridor and determine the most cost-effective control strategy for an expanded geographical area.

4. NO_x Reductions
The contribution of NO_x emissions to ozone nonattainment is uncertain. NESCAUM may wish to advocate evaluating additional NO_x reductions as one control measure in an ozone strategy.

5. Emission Inventory
State emission inventories need to be reviewed and updated with the most current emission factors using conservative assumptions.

6. Toxics
States and EPA should be aware of the impending conflict between VOC controls and toxic air pollutant controls. In many cases the substitutes for VOCs are carcinogenic compounds.

7. Funding
Additional funding necessary for any of these initiatives is a given. But with impending Federal budget cuts States are presented with a real problem of allocating already scarce resources. This situation dictates that EPA and the States allocate available resources toward the ozone reduction strategies that will yield the most cost-effective emission reductions in tons of VOCs reduced.

BASIC CONTROL PACKAGE - FEDERAL INITIATIVES

- Correct Erosion of Gasoline Volatility (RVP) and Further Restrict the Current Level
- Expand Gasoline Marketing Controls with Onboard Cannisters and Stage II Vapor Recovery
- Finalize the National Emission Trading Policy

- Issue Control Technique Guidelines for
  - Plastic Parts Coating
  - Furniture Refinishing
  - Architectural Coatings
  - Publically Owned Treatment Works
- Regulate Nationally VOC Emissions from Consumer, Industrial and Commercial Solvents
- Enforce the 5% Rule
- Utilize the ROM Model and Decide what Geographic Areas are not Sufficiently Controlled
- Expand Upwind Geographic Coverage
- Revise FMVCP Emission Standards to be more stringent, add other source classes e.g., motorcycles
- Upgrade NSPS for Major VOC Sources
- Finalize Group III RACT (100 TPY potential) requirements
- Issue RACT for non-CTG 100 TPY (potential) Sources

BASIC CONTROL PACKAGE - FEDERAL/STATE INITIATIVES

- Require Uniform* Enforcement
- Require Uniform* RFP Tracking
- Require Uniform* NSR for
  - NSPS and PSD Sources
- Clean-up State Regulations (CTG Deviations)
- Require RACT I/M Programs
- Eliminate Accommodative SIPs
  - 1:1 offsets must be required
- Expand Class B (minor source) Source Enforcement for areas covered by post '82 CTGs and particularly for gasoline marketing sources
- Install Sufficient Hydrocarbon, Ozone and Nitrogen Oxide Monitoring especially in unclassified areas

- Eliminate the discrepancies which exist between the way individual States and/or EPA Regions implement ozone attainment programs

ADVANCED CONTROL MEASURES - POST '87

- Issue Generic RACT for non-CTG Sources to 25 TPY (potential) sources
- Require Enhanced I/M including other vehicle classes, anti-tampering programs
- Establish a more Stringent NSR
  - greater than 1:1 offsets, lower cutoffs for control
- Expand Area Source Controls and Enforcement
- Require Additional Transportation Control Measures (TCM)
- Require Alternative Motor Fuels

STAPPA/ALAPCO OZONE CONTROL STRATEGY

	ATTAINMENT AREAS	MODERATE NONATTAINMENT AREAS	SEVERE NONATTAINMENT AREAS
AREA CLASSIFICATION	All areas meeting the National Ambient Air Quality Standard for ozone.	All nonattainment areas (as of January 1, 1988) below a design value of 0.18 ppm (based upon 1985-1987 data), with the exception that some areas (below 0.18 ppm) experiencing a large number of exceedances may not qualify as "moderate."	All nonattainment areas (as of January 1, 1988) above a design value of 0.18 ppm (based upon 1985-1987 data), plus other nonattainment areas (below 0.18 ppm) with a large number of exceedances. All areas that do not attain the standard by December 31, 1992 will be classified as "severe."
DEADLINES/SANCTIONS	Areas must comply with all requirements identified below. Sanctions imposed only for failing to implement the identified measures.	Areas must comply with all requirements identified below and attain by 1992, or meet requirements for Severe Nonattainment Areas. Sanctions imposed only for failing to implement the identified measures.	Areas must comply with all requirements identified below. If attainment is not reached by 1997, the area must submit a plan demonstrating attainment by a specific date. Areas must meet specific percent reductions from 1987 emissions every five years. Sanctions imposed only for failing to implement the identified measures.

	ATTAINMENT AREAS	MODERATE NONATTAINMENT AREAS	SEVERE NONATTAINMENT AREAS
REQUIREMENTS FOR EXISTING SOURCES (DUAL SOURCE DEFINITION)			
A. CONTROLS	Reasonably Available Control Technology (RACT), unless a demonstration can be made that the area does not contribute to nonattainment	Reasonably Available Control Technology	Reasonably Available Control Technology
B. SOURCE APPLICABILITY	Sources emitting 50 tons or more per year (allowable) of volatile organic compounds (VOCs)	Sources emitting 50 tpy or more (allowable) of VOCs	Until 1992, sources emitting 50 tpy or more (allowable) of VOCs; after 1992, sources emitting 25 tpy or more
C. INDUSTRIES AFFECTED	Industrial Categories (I-III) for which Control Technique Guidelines currently exist. Additionally, EPA must define RACT within two years and areas must implement those measures for the following industries: Stage II Vapor Recovery Wood Furniture Coating Autobody Refinishing Metal Rolling SOCMI Distillation SOCMI Batch Process Coke Oven By-Product Plants Treatment, Storage and Disposal Facilities Bakeries Sewage Treatment Plants Web Offset Lithography Plastic Parts Coating Marine Vessels	Same as Attainment Areas	Same as Attainment Areas
D. BUBBLING	Allowed at 1:1 ratio	Allowed at greater than 1:1 ratio	Prohibited
E. EMISSION CAPS	Not required	Not Required	Required, based on historical operating rates

	ATTAINMENT AREAS	MODERATE NONATTAINMENT AREAS	SEVERE NONATTAINMENT AREAS
REQUIREMENTS FOR NEW SOURCES (DUAL SOURCE DEFINITION)			
A. CONTROLS	Best Available Control Technology (BACT)	Lowest Achievable Emission Rate (LAER)	Lowest Achievable Emission Rate and Best Available Control Technology
B. SOURCE APPLICABILITY	New sources emitting 50 tpy or more (allowable) of VOCs; major modifications -- 20 tpy or more	New sources emitting 50 tpy or more VOCs; major modifications -- 20 tpy or more	LAER required for new sources emitting 50 tpy or more and for major modifications 20 tpy or more; BACT required for new sources less than 50 tpy.
C. OFFSETS	Not required	Required at greater than 1:1 for new sources emitting more than 50 tpy and for major modifications more than 20 tpy.	Required at greater than 1:1 for new sources emitting more than 50 tpy and for major modifications more than 20 tpy.
D. NEW SOURCE NETTING	Prohibited	Prohibited	Prohibited
MEET EXTENSION AREA REQUIREMENTS	Not required	Required	Required
VEHICLE INSPECTION AND MAINTENANCE	Not required	Full component and/or tailpipe	Enhanced I/M; expansion to CMSA (with opt-out provision)

FEDERAL CONTROL MEASURES	
A. GEOGRAPHIC COVERAGE	Nationwide, regardless of attainment status.
B. STATIONARY SOURCE CONTROLS	Commercial/Consumer Solvents Architectural Coatings Pesticide Application Traffic Coatings Military Specification Coatings
C. MOTOR VEHICLE CONTROLS	Onboard Controls Gasoline Volatility Controls (9 psi) Motor Vehicle Emission Standards: Light Duty Vehicles (1992): 0.25 ppm (HC), 3.4 ppm (CO), 0.4 ppm (NO_x) Light Duty Trucks (1994): Proportional Decreases Heavy Duty Trucks (1994): Proportional Decreases
MAXIMIZE EFFECTIVENESS OF EXISTING RULES	Required for Attainment, Moderate Nonattainment and Severe Nonattainment Areas: • Eliminate deficiencies in state and local programs. • Upgrade federal requirements, including NSPS and CTGs. • Conduct greater surveillance and enforcement of the federal mobile source control program. • Update compliance procedures for federal motor vehicle control programs. • Implement short (idle) tests as part of the Federal Test Procedure and assembly line audit procedures.
STUDY PROVISION	Comprehensive ozone study completed by 1992 designed to: • Determine the role of nitrogen oxides (NO_x) and the effect of NO_x controls. • Quantify the transport of ozone and ozone precursors. • Examine the relationship between ozone precursor emissions, ambient precursor levels and ozone concentrations.

RESPONSES TO QUESTIONS FROM SENATOR MITCHELL BY NESCAUM

1. It was my understanding that EPA is conducting an analysis of ozone transport in the Northeast. What is the status of this analysis? Will this analysis assist the States with attainment of the standard?

The U.S. EPA plans to resurrect the Northeast Corridor Regional Modeling Project (NECRMP) during FY-88 under a new project name, Regional Oxidant Modeling- Northeast Transport (ROM-NET). In 1976 the U.S. EPA made a commitment to complete the NECRMP so that the states could use it in developing their 1982 ozone State Implementation Plans. The NECRMP was designed to estimate ozone/ ozone precursor transport across state boundaries and to analyze the effectiveness of ozone control strategies applied to various source regions within the northeast. The U.S. EPA terminated the NECRMP in FY-84 for budgetary reasons although over $12 million had already been spent and only about $1.0 million was needed to complete the project.

The northeast states, along with the U.S. EPA Regional Offices in Boston and New York City vehemently opposed the termination of the NECRMP, but to no avail. The state and regional offices communicated their concerns about the fate of this project to the U.S. EPA Administrator William Ruckleshaus, Deputy Administrator Alvin L. Alma, and Assistant Administrator for Air and Radiation Joseph A. Cannon in writing and in several meetings. Copies of these written communications are attached.*

The U.S. EPA's schedule for the ROM-NET project requires them to complete their analysis in FY-91 or FY-92. The northeast states believe that if the U.S. EPA is seriously committed to resolving the complex ozone nonattainment problem in the northeast, the project could be completed by the end of FY-89. The record indicates that the U.S. EPA has repeatedly delayed or postponed their analysis of ozone transport in the northeast There is no guarantee that the U.S. EPA will adhere to their project schedule in the future. In fact, resources for FY-88 ROM-NET work are not identified in U.S. EPA's budget. The states have been informed that U.S. EPA's Office of Air Quality Planning and Standards has been instructed to reprogram FY-88 allocated resources to support the ROM-NET effort. The states have not yet received any written confirmation that the U.S. EPA will recommence work on the project and that such a project will be completed.

Completion of the northeast ozone transport analysis is extremely important and will provide states with a method of evaluating regionwide control strategies and of quantifying ozone transport across state boundaries. The states believe that the Regional Oxidant Model is essential for developing more accurate ozone attainment demonstrations and more effective ozone attainment plans.

2. Has the EPA provided the States with timely and sufficient technical and financial assistance in their efforts to attain the standards?

The northeast states have been extremely dissatisfied with the amount of financial and technical assistance the U.S. EPA has provided during the last six years. Federal financial assistance to state air programs has decreased by more than 20% in real dollars since the passage of the 1977 Clean Air Act Amendments. This decline in federal funding has coincided with the transfer of many federal responsibilities to the states, including very resource intensive ozone reduction programs for both stationary and mobile sources. States are determined to implement effective ozone control strategies. Unfortunately competing air pollution control needs (e.g. acid rain, air toxics, etc.) and the lack of sufficient increases in federal funding has severely undercut the level of resources available to undertake these efforts. A copy of NESCAUM's recent testimony before the Senate Appropriations Subcommittee on HUD-Independent Agencies on the need for increased federal support for state air quality control programs is attached.

The U.S. EPA has not met state need for technical assistance in the following areas:

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*Retained in committee files.

A. Ozone Modeling

In the 1982 ozone SIPs, the U.S. EPA required the use of the EKMA Model to demonstrate future attainment. Since the EKMA Model is not capable of accounting for ozone transport and uses relatively simple ozone formation chemistry, the resulting state attainment demonstrations were inaccurate. The need for more accurate models such as the Regional Oxidant Model and urban specific airshed models was recognized in the late 1970s. Together the U.S. EPA and various state air quality agencies have developed preliminary airshed models for both the Philadelphia and New York City metropolitan areas. Unfortunately, boundary conditions which define the air mass moving into the urban modeling domain can only be accurately characterized through the use of the Regional Oxidant Model. Since this model is not available, we cannot be confident about the accuracy of the Philadelphia and New York City airshed models. EPA's failure to complete the Regional Oxidant Model is discussed in response to the previous question.

B. Non-Methane Hydrocarbon (NMHC) Ambient Monitoring

Because of technical problems associated with the NMHC sampling techniques ,very limited ambient data have been collected. NMHC data is an essential input parameter to ozone formation/ dispersion models. To construct these models, representative data sets consisting of NMHC ambient data from a number of sites over a period of time is required.

C. Control Technique Guidelines for Stationary Sources

The U.S. EPA has not issued a Control Technique Guideline (CTG) for any stationary source category during the past six years. States depend on the U.S. EPA for such guidance. Without EPA guidance, the states cannot apply uniform control requirements to various existing source categories. The following is a list of source categories for which EPA needs to issue CTGs:

1. Autobody refinishing
2. Wood furniture coating
3. Metal rolling
4. SOCMI distillation
5. SOCMI batch process
6. Coke oven by-product plants
7. Treatment storage and disposal facilities
8. Bakeries
9. Wastewater treatment works
10. Web offset lithography
11. Plastics parts coating
12. Oil and gas production
13. Marine vessels, including off-loading fuel

The U.S. EPA also needs to regulate several high solvent products in use across the country in order to avoid market distribution descriptions which would occur if states attempted to regulate these products on an individual basis. These products include:

1. Architectural coatings
2. Commercial solvents
3. Consumer solvents
4. Traffic paint
5. Pesticide applications

3. The Northeast States have recently proposed to limit gasoline volatility on a regional basis. Would it be preferable to have the federal government regulate gasoline volatility?

It would be much better if the federal government were to impose effective restrictions on gasoline volatility, rather than having the northeast states impose such limitations on an individual basis.

Fortunately, through the efforts of the Northeast States for Coordinated Air Use Management (NESCAUM) it has been possible to coordinate this action throughout the northeast region of the country.

It is my understanding that the U.S. EPA recently submitted a proposal for limiting gasoline volatility to the Office of Management and Budget. Unfortunately the U.S. EPA proposal would only limit gasoline volatility to a Reid Vapor Pressure (RVP) of 9.0 psi compared to the NESCAUM proposed limit of 8.0 psi. Furthermore, the U.S. EPA limit of 9.0 psi would not become effective until 1992. NESCAUM has determined that it is quite feasible to achieve an RVP of 8.0 psi by April 1, 1989.

4. What emission reduction benefits do you expect from this strategy?

NESCAUM estimates that restricting gasoline volatility to an RVP of 8.0 psi throughout the eight state region would yield a reduction of over 100,000 tons of hydrocarbon emissions during the ozone season. The American Petroleum Institute (API) has testified that the NESCAUM gasoline volatility strategy would affect the entire northeast/ mid-Atlantic petroleum distribution area which includes North Carolina, Virginia, West Virginia, Maryland, Delaware and eastern Pennsylvania, in addition to the eight NESCAUM states. If API is correct, the resulting reduction in hydrocarbon emissions would be close to 200,00 tons during the ozone season. This would be extremely advantageous to the NESCAUM states since ozone transport into the NESCAUM region would be reduced. Enclosed is a summary table delineating the reductions in hydrocarbon emissions which individual states could achieve by various RVP limitations from gasoline storage, transfer operations and vehicles.

RESPONSE TO QUESTIONS FROM SENATOR CHAFEE BY MASSACHUSETTS

1. Have you been able to identify how much of the problem is being caused by mobile sources as compared with stationary sources?

Our information leads us to believe that in Massachusetts mobile and area sources of VOC play a more important role in local ozone formation than point sources. In Massachusetts, VOC emission for the year 1980 averaged 783,908 kg/day. Mobile sources and area sources contributed almost seventy-eight percent (77.8%) of this total. (Mobile sources contributed 43.5% of the total.) In 1985, Massachusetts VOC emissions dropped to 509,184 kg/day (a reduction of 35% from 1980). Mobile and area sources still dominated as VOC emission sources, contributing almost seventy-seven percent of the total (76.7%). In 1980 and 1985 point source VOC emissions were 22.2% and 23.4% (respectively) of the total state VOC emissions. The table below presents 1980 and 1985 VOC data.

TABLE 1. VOC EMISSIONS FOR MASSACHUSETTS (1980 and 1985).

SOURCE CATEGORY	1980		1985	
	KG/DAY	%	KG/DAY	%
POINT	174036	22.2	118466	23.4
AREA	268565	34.3	233559	45.7
MOBILE	341307	43.5	157159	31.0
TOTAL	783908	100	509184	100

2a. How difficult is it to control the `non-point sources' of pollution?

It is very difficult and very frustrating to try to control VOC area sources (`non-point sources'). There is virtually no federal support in the way of control guidelines or across the board national control for most of these sources (architectural coatings, commercial and consumer solvents, etc.). Similarly, mobile sources, which may also be considered `non-point sources' need national exhaust standards for several classes of vehicles (heavy duty gasoline and diesel vehicles).

2b. Is it easier to control the point sources?

It is easier to control point sources, and for the most part these sources have been controlled. Again, we need controls on the `non-point sources' of VOC to achieve and maintain the ozone standard.

2c. What percentage of the problem is caused by `non-point sources as opposed to point sources?

If we are speaking of local ozone formation, and look at the Massachusetts data (TABLE 1), then in Massachusetts 'non-point sources' (mobile and area sources) probably contribute between 66% and 75% to ozone formation.

3a. To what extent is the involvement of several different state agencies a problem?

Each state has its own matrix of public agencies which deal with public health, welfare, and environmental issues. The relationships among these agencies vary from state to state, from year to year, and from program to program. Many states recognize that environmental protection and economic development are not mutually exclusive. The quality of life in a state has an impact on drawing quality industry to that state. Many states have woven environmental protection into transportation and economic and energy development agency programs. This linkage is very essential if any environmental planning is to succeed. Wherever possible, formal mechanisms should be sought to provide for this linkage.

3b. Do environmental protection agencies have to convince transportation departments and economic development offices to go along with environmental protection proposals?

Environmental protection agencies do have to convince other departments and offices of the importance of incorporating environmental protection proposals into their day to day operations and long range planning. The amount of convincing differs among the agencies and with regards to the type of environmental proposal.

State of Wisconsin \ **DEPARTMENT OF NATURAL RESOURCES**

Carroll D. Besadny
Secretary

BOX 7921
MADISON, WISCONSIN 53707

June 19, 1987

IN REPLY REFER TO: 4510-2

The Honorable George Mitchell
Subcommittee on Environmental Protection
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510-6175

Dear Senator Mitchell:

I thank you again for the opportunity to present testimony on March 26 before your subcommittee. Much of my testimony focused on the high ozone levels in the six county Greater Milwaukee area. It is on this issue that I will address my responses to the questions (dated May 8) submitted by you and Senator John Chafee.

Questions from Senator Mitchell (all witnesses)

Question #1

What control strategies have you put in place in your region?

Response

Our effort to reduce ozone in the southeastern Wisconsin nonattainment area has met and exceeded U.S. Environmental Protection Agency (EPA) requirements and guidelines. The general strategy to lower ozone concentrations is to restrict the amount of volatile organic compounds (VOCs) in the region. VOCs are principal precursors to the formation of ozone.

We have promulgated, implemented and enforced a comprehensive series of VOC control strategies for southeastern Wisconsin that has resulted in the only fully-approved ozone plan in U.S. EPA Region 5. These control strategies limit VOC emissions from sources in 21 stationary source categories, as well as the vehicle emissions inspection and maintenance program. The implementation and enforcement of these measures have contributed greatly towards the estimated 31% reduction in annual VOC emissions in southeastern Wisconsin between 1980 and 1985. This 31% reduction is about 6% ahead of scheduled VOC emissions reductions necessary to attain the ozone standard by the regulatory deadline date of December 31, 1987.

The U.S. EPA has already determined that both our demonstration of attainment for ozone and our VOC control strategies, which are designed to regulate about 95% of the VOC emissions in each category, would be effective. Consequently, the agency gave final, unconditional approval to our ozone state implementation plan (SIP) for southeastern Wisconsin more than two years ago.

Question 2

What control strategies were rejected and why?

Response:

We generally followed U.S. EPA guidance and requirements in developing our stationary and mobile source VOC emission control strategies. In developing our southeastern Wisconsin ozone SIP, we determined there would be negligible VOC emissions reductions attributable to transportation control measures. Consequently, we did not include transportation control measures within the attainment demonstration of our ozone SIP. Although these measures are normally required by the U.S. EPA, the agency approved our plan without this strategy since we were able to demonstrate attainment without it.

Question 3

What has been the greatest impediment to your ability to reduce emissions in order to reach attainment?

Response:

Our ozone SIP reasonable further progress report for 1985 indicates that southeastern Wisconsin has about four thousand tons less VOC emissions than what was predicted necessary in our plan for 1985 in achieving our goal of ozone attainment by December 31, 1987. Our implementation and continued enforcement of the control strategies contained in our plan demonstrates our abiding commitment towards attainment through substantial VOC reductions in the region.

However, we feel strongly that the Chicago-Gary area generated ozone and ozone precursors which impact upon southeastern Wisconsin are substantial enough to significantly negate our ozone SIP efforts. I presented our arguments on this issue during my March 26 testimony.

Question 4

What are the major sources of air pollution in your region?

Response:

In the context of my previous responses, I will equate "air pollution" with VOC emissions in southeastern Wisconsin. Based on data from our 1985 reasonable further progress report, 1985 annual VOC emission estimates for southeastern Wisconsin are as follows:

Controlled stationary sources:	14,583 tons
Uncontrolled stationary sources:	3,921 tons
Highway vehicles:	19,217 tons
Aggregate minor sources (e.g., household paints, power boats):	29,576 tons
Total	67,297

As you can see, individual minor sources collectively amount to the single largest general source category. Almost all of these minor sources are currently uncontrolled. The emissions from controlled stationary sources (e.g., paint lines, degreasing operations) and highway vehicle emissions, are subject to regulation.

Question #5

What percentage of emissions are from mobile sources? What percentage are from regional transport?

Response

As shown in the above-listed table, highway vehicles accounted for approximately 29% of the VOC emissions emitted in the southeastern Wisconsin ozone nonattainment area during 1985. This 29% value is a significant reduction from the 41% this category contributed to total emissions in 1980.

The second part of this question is much more difficult to answer. As I pointed out in my March 26 testimony, we have shown that there is a strong correlation between high ozone values in the Milwaukee area and warm, southerly flow from the Chicago-Gary area. However, the meteorological mechanisms involved in this transport are extremely complex and not well understood at this time. Consequently, it is difficult to quantify the amount of ozone and ozone precursors that are transported into southeastern Wisconsin, particularly on those days that have high ozone levels.

However, we do know that in 1985, the Chicago-Gary metropolitan area emitted approximately 280,000 tons of VOCs, which was about four times the southeastern Wisconsin total (67,300 tons). Subsequently, there is sizeable potential for considerable pollutant transport northward from the Chicago-Gary region on those days that are favorable for the formation of high ozone levels.

Question #6

When do you believe your region will reach attainment?

Response

The major variable in solving the attainment equation for southeastern Wisconsin is the transport of ozone and ozone precursors from the Chicago-Gary area. We obviously cannot influence the actual transport mechanism (i.e., northward-moving winds). However, we are trying, through litigation, to lower the amount of pollutants that are swept into this southerly flow. Based upon 1985-1986 monitoring and meteorology data, we believe that southeastern Wisconsin would be in attainment of the ozone standard, were it not for ozone and ozone precursor transport from the Chicago-Gary area.

Question #7

What additional control measures wil' be necessary for you to reach attainment?

Response

The answer to this question is highly contingent upon the success of our litigation to have effective SIPs implemented in the Chicago and Gary areas. If this litigation is successful and results in substantial VOC reductions in these regions, we may not have to develop any additional control measures to attain the ozone standards in southeastern Wisconsin.

Question #8

What other efforts would have been necessary for you to reach attainment of the deadlines?

Response

It is not possible to fully answer this question now. I will state that we have implemented every ozone/VOC control strategy that has been required of us. Furthermore, these control strategies have proven to be more effective that expected, based upon our ozone SIP reasonable further progress reports. Consequently we believe that we have fulfilled our commitment towards reducing ozone in this region of the state. The next effort to resolve this problem will need to originate from outside Wisconsin.

Questions from Senator Mitchell (Don Theiler)

Question #1

Have businesses been reluctant to locate in your state because of its status as a nonattainment zone? Are there other economic effects of attainment?

Response

Yes. The attached newspaper articles, editorials and reports indicate that the ozone nonattainment status has given industry cause to hesitate in considering the region for their expansion plans.

Question #2

Would controls on architectural coatings, consumer solvents and highway traffic paints be more easily imposed on a national, rather than a statewide basis, as is being considered in Wisconsin legislation?

Response

Yes, a federal (i.e., U.S. EPA) approach to developing nationwide controls on these widely-used VOC source categories would be more consistent, fairer and less redundant than if individual states pursued such controls on their own. The U.S. EPA could develop control technique guidelines for these source categories, as it has already done for numerous industrial surface coating, gasoline marketing and solvent usage categories.

Question #3

You state on page 11 of your testimony that Wisconsin's frustration with EPA over the agency's failure to impose actions on Illinois and Indiana, which do not have approved State implementation plans, will lead the Wisconsin Attorney General to sue EPA.

(a) What steps should EPA have taken to insure that Illinois and Indiana reduce their air emissions?

(b) What controls should Illinois and Indiana have adopted?

Response

(a) The U.S. EPA simply had to hold Illinois and Indiana responsible for meeting all federal requirements and deadlines, as contained in the 1977 Clean Air Act, U.S. EPA regulations, and U.S. EPA policy. Wisconsin was able to comply with these same requirements. Consequently, the U.S. EPA unconditionally approved our SIP.

The same commitment to successfully completing similar efforts has been noticeably absence in the case of Illinois and Indiana. Furthermore, the U.S. EPA has not been as diligent as is necessary to get these states moving expeditiously on their SIPs. The results are incomplete SIPs with no final action taken on them at the federal level. And the ozone attainment deadline is less than seven months away.

The federal Clean Air Act provides for sanctions to be imposed on those states that do not comply with major provisions of the Act, including SIP development. These sanctions include a moratorium on issuing construction permits for major sources as well as federal funding cutoffs for highway and wastewater treatment construction, and air pollution control programs. The rationale for these sanctions is that federal monies should not be contributing towards areas that have not committed to cleaning up their unhealthy air (i.e., having a federally-approved SIP) in a timely manner.

We feel that these sanctions should have been imposed on the Chicago-Gary area since neither Illinois or Indiana has submitted approvable ozone SIPs for this region. Both states have had five years to do so - and have still failed in this capacity. We believe that the U.S. EPA, in its failure to impose sanctions on Illinois and Indiana, has not employed its full leverage with these recalitrant states.

(b) Illinois and Indiana should have adopted and sources should be complying with all necessary VOC emission control strategies that would have resulted in attainment of the ozone standard by December, 1987. Almost all of these control strategies are mandated by the U.S. EPA.

Questions from Senator Chafee

Question #1

Have you been able to identify how much of the problem is being caused by mobile sources as compared with stationary sources?

Response

Referring to my response to question #4, you will see that highway vehicles were responsible for approximately 29% of the VOC emission in southeastern Wisconsin during 1985. Controlled stationary sources emitted approximately 22% of region's VOC's during the same year.

Question #2

We seem to have two sources of pollution here: first, the traditional point source (the end of the pipe or smokestack) and second, non-point sources of pollution (more generalized emissions such as pain coatings and road building).

a. How difficult is it to control the "non-point sources' of pollution?

b. Is it easier to control the point sources?

c. What percentage of the problem is caused by non-point sources as opposed to point sources?

Response

Point sources, in general, are easier to control than non-point sources. It's a simple case of economics. Namely, one gets more productivity from air pollution control devices that control large emission sources. The difficulty in controlling non-point (area) sources depends on the cost effectiveness of the control technology for the source category in question. The increase in costs and subsequently prices, to control VOCs from area source operating and equipment have been and still are largely untenable, with a few exceptions (e.g., architectural coatings, stage 2 vapor recovery) to the American consumer. These controls would necessitate a substantial change in lifestyle.

Question #3

The types of controls being considered will affect virtually everyone. We all have to change our behavior to deal with this problem. For example, in some areas of the country it may be necessary to change our driving habits.

To what extent is the involvement of several different state agencies a problem? Am I correct in assuming that the environmental protection agencies have to convince the transportation departments and the economic development offices to go along with its proposals?

Response

Each state agency obviously has its own set of charges. In Wisconsin, there is an effort to minimize the overlap of responsibilities among state agencies. Consequently, joint agency efforts are often perceived from different viewpoints. However, once both agencies understand the overall purpose of the joint effort, the necessary interdepartmental cooperation is usually realized.

In Wisconsin, the state Department of Transportation administrates the motor vehicle emissions inspection and maintenance (I/M) program in the southeastern Wisconsin region. We have educated the Department of Transportation on the importance and necessity of this program.

We have given technical assistance to the state Department of Development on its development of an industrial growth policy in the southeastern Wisconsin ozone nonattainment area. As with the transportation department, we have impressed upon the Department of Development the purpose for restricting certain emissions in this part of the state - the larger view of the Clean Air Act and the mandate to strive for healthy air. It has taken some effort, but both the Departments of Transportation and Development appreciate our position on transportation and industrial development-related issues. Nevertheless, securing inter-departmental cooperation has not made our job any less difficult.

I hope these responses have satisfactorily answered your questions on Wisconsin efforts to control air pollution, particularly ozone. If I can be of further assistance to your subcommittee on this issue, feel free to write or call me. My telephone number is (608) 266-0603.

Sincerely,

Donald F. Theiler, Director
Bureau of Air Management

DFT:RA
db/4382C

County of Santa Barbara
AIR POLLUTION CONTROL DISTRICT
5540 EKWILL, SUITE B, SANTA BARBARA, CALIFORNIA 93111
PHONE (805) 964-8111 FAX (805) 967-4872
JAMES M. RYERSON
Air Pollution Control Officer

June 3, 1987

The Honorable Pete Wilson
United States Senate
720 Senate-Hart Building
Washington, DC. 20510

Dear Senator Wilson:

This letter is to express the Santa Barbara County Air Pollution Control District's support for Senate Bill #235 which would amend the Clean Air Act to provide authority to the Environmental Protection Agency to regulate air pollution on the Outer Continental Shelf.

The District supports your proposed legislation for the following reasons:

(1) The County of Santa Barbara has been mandated by the Environmental Protection Agency, under the requirements of the Clean Air Act, to revise the County's Air Quality Attainment Plan. The County must demonstrate that air pollution levels will be reduced below the federal ozone standard. As Outer Continental Shelf (OCS) sources contribute a significant amount of emissions to the County's air basin, the County must include these sources in our Air Quality Attainment Plan. In that the agencies responsible for preparation and approval of this Plan (Santa Barbara County, the California Air Resources Board, and the Environmental Protection Agency), have no direct regulatory authority over OCS emissions sources, it is possible that the lack of regulation of these sources may prevent the County from demonstrating attainment of the federal ozone standard. This situation places the County in an untenable position, caught between the mandates of the Environmental Protection Agency and the lack of regulatory control over major sources on the Outer Continental Shelf. Your proposed legislation would enable regulation of OCS sources in a manner consistent with EPA mandates for implementation of the Clean Air Act. Furthermore, it is also possible that, in order for the County to demonstrate attainment of the federal ozone standard, emissions onshore and within state tidelands may need to be regulated to a significantly greater extent in order to compensate for OCS sources which currently have minimal controls required by the Minerals Management Service.

(2) Currently, petroleum facilities located 3.1 miles offshore face substantially fewer requirements for air quality mitigation than adjacent petroleum facilities located 2.9 miles offshore; both facilities lying within the same air basin and having virtually the same onshore air quality impact. Your proposed legislation would result in consistent requirements for emission controls and air pollution offsets for facilities further than three miles from shore compared to those facilities within three miles of shore and those located onshore.

(3) The Environmental Protection Agency, in conjunction with state and local air quality agencies, have established extensive procedures to insure consistent air quality regulation across jurisdictional boundaries. These procedures ensure facilities affecting the same air basin face the same responsibilities for air quality protection, and prevent the flight of industry across jurisdictional boundaries to escape regulation relating to air quality. Your proposed legislation would insure the same procedures are applied to OCS sources as are applied to other sources within the air basin.

(4) Your legislation would result in a significant reduction in litigation of local, state, and federal permits which result from inconsistencies in regulation of OCS sources relative to all other sources within the air basin.

Thank you for introducing this important legislation. Please contact me if I can further support the adoption of this legislation.

Sincerely,

James M. Ryerson, APCO
Air Pollution Control District

WAM:bj:bc

6394:18W3

UNITED STATES CONFERENCE OF MAYORS
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TESTIMONY OF THE HONORABLE TONY KNOWLES

MAYOR OF ANCHORAGE

MR. CHAIRMAN, MEMBERS OF THE COMMITTEE, MY NAME IS TONY KNOWLES, MAYOR OF ANCHORAGE, ALASKA. IT SURPRISES MANY PEOPLE THAT A CITY WITH LESS THAN 250 THOUSAND PEOPLE ON THE EDGE OF 350 MILLION ACRES OF ALASKA HAS AN AIR POLLUTION PROBLEM. HOWEVER, DURING THE EARLY 1980S, ANCHORAGE CONSISTENTLY PLACED AMONG THE TOP 10 CITIES IN THE NATION FOR VIOLATIONS OF THE AMBIENT AIR QUALITY STANDARDS FOR CARBON MONOXIDE - CO. TO CORRECT THIS PROBLEM WE DEVELOPED AN AIR QUALITY PLAN, THE MAJOR COMPONENT OF WHICH IS A VEHICLE EMISSIONS INSPECTION AND MAINTENANCE - I/M - PROGRAM

BEGUN IN 1985, OUR I/M PROGRAM HAS BEEN A TREMENDOUS SUCCESS. WE ARE GETTING CO TAILPIPE EMISSIONS REDUCTIONS THAT ARE AMONG THE HIGHEST IN THE COUNTRY. EPA'S 1986 NATIONAL AIR AUDIT REPORT COMMENDED ANCHORAGE'S PROGRAM FOR ITS EFFECTIVE AND AGGRESSIVE MANAGEMENT AND STATED THAT OVERALL THE PROGRAM IS EXCEEDING THE EMISSION REDUCTION REQUIREMENTS ESTABLISHED BY EPA FOR PROGRAM IMPLEMENTATION.

SINCE THE STARTUP OF THE ANCHORAGE PROGRAM WE HAVE SEEN DRAMATIC REDUCTIONS IN THE NUMBER OF DAYS WE HAVE EXCEEDED THE FEDERAL CO STANDARDS. HOWEVER, DURING THIS SAME PERIOD WE HAVE EXPERIENCED MILD WINTERS. CO EMISSIONS INCREASE AS TEMPERATURE DECREASES. EVEN WITH AN EXEMPLARY I/M PROGRAM, A RETURN TO MORE NORMAL WINTER WEATHER PATTERNS MAY ONCE AGAIN BRING SIGNIFICANT NUMBERS OF CO VIOLATIONS. WHILE WE OFTEN THINK OF ANCHORAGE AS UNIQUE, IN THIS AREA WE SHARE A VERY COMMON REGIONAL PROBLEM.

EPA PROJECTS THAT AS MANY AS 80 AREAS IN 42 STATES WILL CONTINUE TO EXPERIENCE LEVELS OF CO IN EXCESS OF THE FEDERAL STANDARD AFTER THE ATTAINMENT DEADLINE OF DECEMBER 31, 1987. A PRIMARY SOURCE OF CO IS THE AUTOMOBILE ENGINE. UNDER CURRENT LAW, PROTOTYPES OF VEHICLES TO BE SOLD IN THE UNITED STATES MUST PASS AN EMISSIONS TEST KNOWN AS THE "FEDERAL TEST PROCEDURE" (FTP). THE PROBLEM IS THAT WHILE THE FTP IS CONDUCTED AT TEMPERATURES BETWEEN 68 AND 86 DEGREES, NEARLY ALL THE EXCEDENCES OF THE FEDERAL CO STANDARDS TAKE PLACE AT TEMPERATURE OF 45 DEGREES OR BELOW. FOLLOWING THE FTP, LOCAL I/M PROGRAMS INSPECT EMISSIONS FROM WARMED UP VEHICLES. THIS DOES NOT ACCURATELY REFLECT THE COLD START PORTION OF THE DRIVING CYCLE AND DOES NOT ACCOUNT FOR THE MEAN WINTER TEMPERATURES IN CITIES FROM NEW YORK TO CHICAGO TO DENVER, TO ANCHORAGE. THE COLD START PROBLEM IS ONE THAT SPANS THE ENTIRE NORTHERN REGION OF OUR COUNTRY. WE CANNOT CONTROL THE WEATHER. WE CAN IMPROVE TECHNOLOGY. IF WE ARE TO MAKE REAL PROGRESS TOWARD CLEANING UP OUR NORTHERN AIR AND PROVIDING A HEALTHY ENVIRONMENT IN OUR CITIES, THERE ARE SEVERAL ACTIONS WE CAN TAKE.

I SUGGEST, THAT AS PART OF YOUR CURRENT CONSIDERATION OF THE CLEAN AIR ACT, CONGRESS DIRECT THE EPA TO SET COLD TEMPERATURE FTP STANDARDS FOR VEHICLES TO BE SOLD IN THE UNITED STATES. EPA MUST MOVE FORWARD NOW TO CARRY OUT ITS RESPONSIBILITIES UNDER SECTION 108 (F) (1) (A) (XV111) OF THE CLEAN AIR ACT WHICH PROVIDED THAT EPA DESIGN PROGRAMS TO REDUCE MOTOR VEHICLE EMISSIONS WHICH ARE CAUSED BY COLD START CONDITIONS. THERE ARE TODAY CERTAIN AUTOMOBILES WHICH RUN SIGNIFICANTLY MORE EFFICIENTLY THAN OTHERS

AT COLD TEMPERATURES. CONGRESS SHOULD ENCOURAGE THE IMPROVEMENT AND APPLICATION OF TECHNOLOGIES WHICH REDUCE AUTO EMISSIONS DURING THE COLD START PORTION OF THE DRIVING CYCLE BY PROVIDING FOR THE SHARING OF SUCH TECHNOLOGIES FOR REASONS OF NATIONAL HEALTH. CONGRESS MAY ALSO WISH TO CONSIDER GIVING LOCAL GOVERNMENTS GREATER FLEXIBILITY TO UTILIZE FEDERAL HIGHWAY FUNDS TO IMPROVE MASS TRANSIT WHERE IMPROVEMENT OF MASS TRANSIT IS AN ELEMENT OF AN AIR QUALITY PLAN APPROVED BY THE FEDERAL GOVERNMENT. THE CURRENT ACT FOCUSES ON SANCTIONS - IN SOME CASES SANCTIONS FOR CITIES WHICH HAVE SHOWN TREMENDOUS GOOD FAITH EFFORTS AND HAVE EXCEEDED EPA'S OWN REQUIREMENTS FOR PROGRAM IMPLEMENTATION FOR I/M PROGRAMS. THE AMBIENT AIR QUALITY STANDARDS AND THE GOALS OF THE ACT NEED NOT, SHOULD NOT BE ALTERED. BUT IF WE ARE TO MAKE REAL FURTHER PROGRESS TOWARD OUR NATIONAL GOAL OF CLEAN AIR, WE NEED TO DESIGN SOME NEW STRATEGIES WHICH MATCH REAL WORLD CONDITIONS. THANK YOU.

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TESTIMONY OF THE HONORABLE KATHRYN T. WHITMIRE

MAYOR OF HOUSTON

Comments by Mayor Kathryn T. Whitmire,
City of Houston
6/16/87

The effort to improve air quality in Houston began 15 years ago. In 1972, in cooperation with the city and the county, the Texas Air Control Board developed the first state implementation plan. The Texas plan has been revised several times, in compliance with EPA requirements and amendments to the Clean Air Act, and was most recently approved in 1985 for attainment by December 31, 1987.

The Texas plan has required control of both stationary and mobile sources of hydro carbons. Houston industries have spent over $100,000,000 in the past 15 years implementing the plan, and will continue to spend $8 million annually controlling stationary sources of hydro-carbon emissions. The EPA has praised Houston's vehicle inspection and maintenance program for identifying non-complying vehicles and deterring people from tampering with air pollution equipment on their cars.

As a result of these public and private efforts to implement the Texas plan, we have reduced hydro-carbons by an estimated 60 percent. But there has been no significant reduction in ozone.

At the end of this year unless Congress acts to change the Clean Air Act, Houston will face severe penalties under the current act for failure to attain the ozone standard. We stand to lose over $200,000,000 in federal highway, wastewater, and air pollution control grants. In addition, the EPA could impose a new source construction moratorium which would result in a major loss of new jobs and new growth, at a time when economic development is a top priority for our city.

It is essential that Houston take every step possible to assure clean air and a good quality of life for its citizens. It is also essential that Congress address the burden the Clean Air Act places on a city in its efforts to clean up the air.

Congress needs to change the current system of deadlines and sanctions which penalizes cities for non-attainment, even when a good faith effort, approved by the EPA, has been made to comply with the law. We need to better understand the causes of ozone, the nature of the health effects of ozone, and the truly effective steps we can take to eliminate the problem.

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TESTIMONY OF THE HONORABLE PEGGY MENSINGER

MAYOR OF MODESTO

MR. CHAIRMAN, MEMBERS OF THE COMMITTEE, MY NAME IS PEGGY MENSINGER, MAYOR OF MODESTO, CALIFORNIA AND CHAIR OF THE CONFERENCE OF MAYORS' SUBCOMMITTEE ON AIR. BOTH MAYORS KOCH AND WHITMIRE, WHO TESTIFIED BEFORE ME OUTLINED TO YOU SOME OF THE VERY REAL EFFORTS THAT THEIR CITIES HAVE MADE TO ADDRESS THE PROBLEMS OF C.O. AND OZONE. MAYOR KNOWLES, WHO WILL FOLLOW ME, WILL EXPLAIN WHY ANY AMENDING LEGISLATION MUST ACKNOWLEDGE THAT CLIMATIC AND GEOGRAPHIC LOCATION MAY HAMPER AN AREA'S ABILITY TO ACHIEVE AMBIENT AIR QUALTIY AND HE CALLS UPON CONGRESS TO ACT ACCORDINGLY.

I AM HERE TO ADDRESS A NUMBER OF UNIVERSAL PROBLEMS THAT FACE ALL MAYORS IN THEIR FIGHT TO ACHIEVE CLEAN AIR

> MAYORS LACK THE JURISDICTIONAL AUTHORITY TO MANDATE PROGRAMS THAT WOULD MOVE THEIR CITIES CLOSER TO AMBIENT AIR QUALTIY, YET WE ARE THE LEVEL OF GOVERNMENT THAT WILL BE SANCTIONED.

THE SANCTIONS IMPOSED ON NONATTAINMENT AREAS ARE ENVIRONMENTALLY COUNTERPRODUCTIVE.

THE WAY IN WHICH THE HIGHWAY SANCTION IS IMPOSED MAY IN MANY STATES DISCOURAGE STATE ACTION TO ACHIEVE AMBIENT AIR QUALTIY.

NO CITY IN AMERICA, NO MATTER HOW BIG THEY ARE NOR HOW MUCH POWER THEIR MAYOR POSSESS MAY LEGISLATE HIS OR HER OWN INSPECTION AND MAINTAINANCE PROGRAM. SIMILIARLY, NO MAYOR, REGARDLESS OF THEIR TENURE AND POPULARITY CAN DIRECT THE AUTOMOBILE INDUSTRY TO TIGHTEN THE EMISSION LEVELS ON THEIR CARS OR BE BANNED FROM ENTERING HIS OR HER CITY. THESE ACTIONS CAN ONLY BE TAKEN BY THE STATE AND FEDERAL GOVERNMENT, RESPECTIVELY.

IN MY HOME STATE OF CALIFORNIA, WE ARE FORTUNATE ENOUGH TO HAVE AN I. AND M. PROGRAM IN PLACE. OTHERS MEMBERS OF THE CONFERENCE OF MAYORS ARE NOT QUITE SO LUCKY AND NOW RISK SUFFERING THE CONSEQUENCES Of their STATE GOVERNMENT'S INACTION.

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SIMILIARLY, CONGRESS AND EPA MUST ESTABLISH WHAT IS REASONABLE AVAILABLE CONTROL TECHNOLOGY AND DO SO WITH A EYE TO COST. WE HAVE OFTEN SEEN WHERE AN AREA HAS TRIED TO APPLY A SPECIFIC CONTROL TECHNOLGY ONLY TO BE CHALLENGED BY INDUSTRY THAT SUCH A TECHNOLOGY IS NOT REASONABLE.

AS TO THE ENVIRONMENTALLY COUNTERPRODUCTIVE NATURE OF MANY OF THESE SANCTIONS, MAYORS DO NOT UNDERSTAND WHY AN AREA WITH AIR PROBLEMS, MUST ALSO FORFEIT ITS RIGHT TO COMPETE FOR WASTEWATER CONSTRUCTION GRANT MONEY. MAYORS ESPECIALLY DO NOT UNDERSTAND THIS SANCTION WHEN THE CONSTRUCTION IS NOT TO ACCOMODATE GROWTH, BUT TO MEET EXISTING NEED AND THIS NEED MUST BE MEET BY NEXT SUMMER.

WE WOULD ENCOURAGE THE COMMITTEE TO EXAMINE WHETHER THERE IS SOME WAY THAT ONLY CLEAN WATER CONSTRUCTION THAT ACCOMODATES GROWTH WOULD BE SANCTIONED AND CLEAN WATER CONSTRUCTION THAT IS REQUIRED TO MEET EXISTING NEEDS IS EXEMPTED

FINALLY, UNDER CURRENT PRACTICE, ONLY THE NONATTAINMENT AREA OF A STATE IS INELIGIBLE TO RECEIVE FEDERAL HIGHWAY FUNDS. THE STATE IN WHICH THE NONATTAINMENT AREA IS LOCATED CONTINUES TO RECIEVE THE SAME AMOUNT OF FEDERAL FUNDS, IRRESPECTIVE OF THE FACT THAT NOT ALL AREAS OF THE STATE ARE ELIGIBLE TO RECEIVE THIS FUNDING. IF THE GOAL OF THE SANCTION PORTION OF THE CLEAN AIR ACT IS TO PROD GOVERNMENT INTO ATTAINING THE CLEAN AIR STANDARDS, THEN NO LEVEL OF GOVERNMENT SHOULD HAVE AN INCENTIVE NOT TO ATTAIN.

TESTIMONY OF EDWARD KOCH

MAYOR OF THE CITY OF NEW YORK

June 16, 1987

As Mayor of New York City, I am pleased to appear before you today to address the important and complex issues surrounding the impending December 31st deadline for attainment of the carbon monoxide and ozone standards under the Clean Air Act.

The resolution of New York City's carbon monoxide problem to a large extent is controlled by efforts under the City jurisdiction. Our problem is similar to that experienced in other large urban areas and is primarily caused by large volumes of vehicles circulating within a central business area, usually at low speeds.

The major types of solutions that can be applied are aimed at increasing the ability of traffic to flow freely and reducing emissions of the vehicle. New York City's efforts to attain the CO standards through the application of these solutions continues to be extensive.

The extent of our commitment can be seen in the substantial investment of resources that has been made. Our efforts to reduce carbon monoxide include an annual expenditure of $31 million for traffic enforcement to increase speeds, a $412 million subsidy to the Metropolitan Authority to increase transit ridership, a commitment of $140 million for a capital program designed to improve traffic flow in heavily congested areas and a $29.7 million computerized system which will electronically survey traffic conditions at 3,400 intersections and adjust signal timing to maintain smooth traffic flow.

Overall, these efforts have been effective in bringing us closer to the CO standard. The limited monitoring data available shows a decreasing trend in CO concentration. We are encouraged that the concentrations are decreasing in value, but more importantly that the number of violation days has dropped from 31 in 1984 to 6 in 1985.

We believe the City, in concert with EPA Region II and the New York State Department of Environmental Conservation, has acted in good faith and in a fashion entirely consistent with the Clean Air Act. Nonetheless, we will not be able to meet the December deadline. We are committed to attaining the emission standards mandated for the protection of public health, but we can no longer say that we will be able to do so within the mandated period of time.

Neither the Clean Air Act itself, nor its legislative history, clearly addresses the inability of all reasonably available control measures to bring about attainment in an area by the deadline. While the State Implementation Plan developed by EPA, DEC and the City, did what it was mandated to do in incorporating all reasonably available control measures, that same State Implementation Plan also failed to achieve all that was expected: The carbon monoxide and ozone problems have not been remedied. The Act responds to this situation with the imposition of sanctions, including cut off of highway funding and moratoria on construction or modification of new emitting sources. In the midst of an otherwise complex, finely-tuned, well-intentioned implementation scheme, this kind of approach seems very much out of place. Indeed, there is clear support in the statute that the sanctions are not intended to punish states and localities that, despite good faith efforts, cannot bring about attainment.

Although every official representing an area of non-attainment is concerned with solving its own somewhat unique problems, each political entity must work toward a common goal of effectively amending the Clean Air Act to force standards to be expeditiously met, with penalty for failure to try and not for trying and failing.

I commend Senator Mitchell on his efforts to put us on track and to address critical issues in a direct and timely manner. Speaking for NYC, I believe Senator Mitchell's bill to extend the Clean Air Act deadlines has laid out the foundation to deal substantively with some of the most complex issues involved in reaching attainment of carbon monoxide and ozone standards that face us.

We are supportive of the attempt to recognize transport as a critical issue in ozone formation and of the creation of the Ozone Transport Regions; we see this as a major step forward in identifying and dealing directly with the effect of attainment areas contributing significantly to the non-attainment of a surrounding area. It provides the necessary framework from which we can work collectively to design equitable plans for achieving areawide attainment of health standards.

The bill provides for a number of other important mechanisms for acheiving the standards. These include;

- Provisions for introduction of alternative fuels
- A more aggressive approach on RACT and their application to existing sources as well as LAER for new sources
- A more aggressive inspection and maintenance program, including centralized emissions testing stations
- Tighter auto tail pipe standards and assurances of in-use auto compliance as well as the requirement for on-board vapor controls
- The requirement for additional federal regulation of fuels, and
- The federal regulation of emissions limitations and standards for solvents, coatings and pesticide application.

I feel strongly that Senator Mitchell's bill contains the necessary elements, as outlined above, to bring many areas of the country into compliance expeditiously, and begin to provide the tools to address the problems of areas in severe non-attainment of the standards.

We feel that some of the key areas of modification should center around the following points. While we are supportive of the designation of Ozone Transport Regions, we are concerned about the mechanisms for decision making. The concept needs further refinement.

Other items which we believe need revision include:

- The bill mandates minimum annual reductions of emissions which don't relate to the time periods necessary to implement the control strategies, and so sets the stage for failure. Sanctions for such failure, including growth limitations seem unjustified.

- The bill does not adequately deal with states based on their actual non-compliance, but on a vague structure of predicting attainment based on actions of upwind areas, with predictive tools that are not yet available.

- The bill does not provide a mechanism for the promulagation of CTG's by the EPA.

- The bill does not provide a mechanism for phasing in alternative fuel vehicles, or mandate the necessary Federal involvement.

- The bill places threshold definition for new major sources at too low a level, with an unrealistic enforcement schedule. Penalties are applied regardless of whether the individual facility itself is in compliance.

- The bill attempts in an unrealistic manner to cap vehicular growth without regard to the practicalities involved.

Another issue of compelling concern to all of us is acid rain. While we are hopeful that the resolution of acid rain issues occur expeditiously, I would discourage their linkage with the necessary amendments to the Clean Air Act, if such inclusion would slow down resolution of the Clean Air Act deadline extension. I look forward to the challenge of the next year, and working with you to help produce legislation which brings us quickly to our common goal of clean air.

Thank you for the opportunity to share my views on these critical issues.

COMMENTS BY

NCY DEPARTMENT OF TRANSPORTATION

AND

NYC DEPARTMENT OF ENVIRONMENTAL PROTECTION

MITCHELL BILL

GENERAL COMMENT

While we agree with the need for tighter requirements in order to meet Clean Air Act goals, the bill does not take cognizance of the practical considerations associated with the implementation of some of the control strategies. The bill has many features which we fully support, at least in concept, and it represents an important step in the right direction for dealing with post-1987 attainment. It recognizes that not all states' situations are ammenable to achieving the standards within a uniform timeframe; proposes the first concrete mechanism for dealing with the ozone transport issue; and compels states to address the contribution of mobile source emissions to nonattainment. Nonetheless because of the bills' failure to prompt EPA to issue technical guidance to define RACT, among other things, it sets the states up to fail.

SPECIFIC COMMENTS

Proposal: The bill mandates implementation of a set of measures for states who project that they will be in compliance in 5 years, and an additional, more stringent set of measures for those who will not reach attainment in this period. A ten year deadline is set for this group. There is a presumption that areas who have levels in excess of 0.18 ppm of ozone are in this second category. This would include NYC. The bill also establishes ozone transport multistate regions and provides for the implementation of control measures regionwide, even in so-called attainment areas. The bill then allows states within the region to implement only the 5 year measures, if they can show that controls implemented by its neighboring states (whether 5 year controls, 10-year controls, or regionally-imposed controls) will be sufficient to bring it into attainment within 10 years.

Comment: The proposal to establish two different deadlines for attainment recognizes the real differences among states' air quality situations. It is laudable to differentiate states and to continue real pressure on states with nearly intractable air pollution problems. Further, it is commendable that the bill has proposed a mechanism to come to grips with the problems of regional transport of ozone and its precursors.

The bill might allow for carbon monoxide and ozone SIPs to be tracked separately, one on the 5 year plan and the other on the 10 year or regional plan.

Our most serious concern pertains to the deadline for ozone nonattainment areas in a transport region. To reiterate, a State may avoid the stringent 10 year measures, if it can show attainment by implementing the 5 year mandate and taking credit for regionally imposed controls on its neighbors. It is impossible to make this demonstration without knowing:

1. The boundaries of the region;

2. The emissions inventory of the region; and

3. The controls to be imposed throughout th region.

For instance, every downstream or receiving state will need to know whether its upstream neighbors will be applying the 10 year measures or the 5 year measures. The way the bill is constructed this information will not be available well enough in advance of the 2 year SIP revision submission deadline to enable such a State to make this demonstration.

Allowing this hybrid only encourages divisiveness among the states in the region. Of course a downstream state would prefer an upstream state to volunteer to impose the ten-year measures. All states within the region should apply the 5-year mandate, attainment areas and nonattainment areas the like.

Proposal: The ozone transport region is to be governed by a commission composed of representatives of each state plus the Administrator and Regional Administrator.

Comments: Because of the nature of the transport problem, there will not be a natural cooperation between the states. As such, in order for this mechanism to be effective, EPA must be compelled to take a strong leadership role. Further refinement of the concept will be necessary.

Proposal: The bill relies on imposition of RACT on several types of sources in order for the nation to achieve the standards. For instance, in 5 years areas, RACT for NO_x and hydrocarbons; the ozone region commission can require RACT on additional sources; and the 10 year measures include reductions from all existing sources, which implies imposing RACT.

Comment: The NYC Metropolitan Air Quality control region requires RACT for all categories of sources for which EPA has issued technical guidance. To achieve further reductions in a consistant and effective manner we are dependent on EPA to issue technical guidance. The bill, however, does not prompt EPA to issue technical guidance to enable states' to make further progress. This must be included. While a state can theoretically develop the technical support for establishing RACT, EPA is in a far superior position to do so. Nationally uniform standards are important and EPA has more technical expertise.

Proposal: Among the actions included in the 10 year plan is the adoption of enforcement strategies to control vehicle miles travelled. The bill requires a state to consider various strategies and explain why any strategy has not been adopted. These strategies include vehicle restrictions in the CBD, whether through pricing or otherwise; bus lanes; improve public transit; employer participation to encourage public transit use; conversion of fleet vehicles to cleaner fuels or engines; traffic flow improvements; trip reduction ordinances; and areawide ride sharing.

Comment: The City is currently examining transportation control measures involving vehicle reduction strategies for CO and therefore agrees with the general concept.

The identified measures, however, are so vaguely expressed as to be meaningless. For instance, tolls are regularly increased on TBTA and Port Authority Bridge and Tunnels; New York City already has miles of bus lanes; and the MTA has an aggressive renovation program for the subways. The bill should include tangible benchmarks by which to measure any proposed SIP commitments.

Proposal: The bill proposes a mandated 8% per year reduction in general emissions of NO_x, HC and CO until attainment is reached or such percentage that will achieve attainment in ten years, as well as for each stationary source.

Comment: The bill seeks to produce a "straight line" improvement in air quality. It is however, impractical as many of the solutions are as yet undefined and when defined have fairly long lead times for implementation, i.e., Stage II, alternative fuels, enhanced I/M etc. All states could "fail" in the first few years. For stationary sources it places an unfair burden on "clean sources" and again may not be implementable in these times frames, especially without EPA control guidance.

For NYC, stationary sources emit roughly 10% of the CO. Further reducing CO levels of stationary sources will not achieve any benefit in locations where we have CO violations. It would be meaningless to force further reductions.

Proposal: Enforcement of fees for each stationary source in a non-attainment area and an emissions penalty for non-complying sources.

Comment: The bill lacks appreciation of practicalities of implementing the requirements set forth. The City and State would be required to administer an emissions budget for every stationary source individually as well as an emissions fee and sanction system for each source. We are concerned about the additional burden fee places on minor sources and suggest that some type of threshold requirements could be designed.

Proposal: The bill mandates alternative fuel in some fleet vehicles.

Comment: See attached.

Proposal: New emission sources must be offset by a 2:1 ratio.

Comment: This may be completely impractical in NYC. What would we offset against upgraded Water Pollution Control Plants? Many of the proposed rules (e.g., offset requirements) are clearly oriented to areas with large-scale, industrial sources. They are not implementable in an urban area such as New York City, which has a multitude of small sources with no significant number of large point sources.

Proposal: Sanctions are proposed for failure to implement annual emission reductions including a ban on additional sewage hookups.

Comments: We believe the sanctions, especially the ban on sewage hook-ups are not practical and cause counterproductive disruptions.

Proposal: The bill proposes establishing new 1-hour ambient air quality standards for ozone, NO2, CO and particulates.

Comments: The need for these changes has not been demonstrated. EPA should be mandated to study and report to Congress.

Attachment 1

Barrier to Alternative Fuel Usage

Obstacles to the commercialization of alternative fuel vehicles include technology issues and what is commonly known as the "chicken and egg problem".

1. Technology Issues

The technology necessary for introducing vehicles into the commercial fleets is not yet available for off the production line delivery. While significant problems remain the technology development should not be a major barrier. The auto and bus manufacturers must however be given sufficient lead time to finish the necessary R/D. I would estimate approximately 2 years.

2. "Chicken and Egg"

Automobile manufacturers will not produce alternative fuel vehicles unless the fuel is widely available at the fueling stations. The fueling stations will not invest the capital required to deliver the fuel, until there is a proven demand, i.e. the introduction of the vehicles. The answer to this dilemma must be government intervention. Once the introduction begins, fuel demand and supply should grow together in the market place. There must however be a threshold of fuel availability met at an economically competitive price, which would be sufficient to provide for the needs of individuals in the first wave of methanol cars or the ownership of such a car will be impractical. Further the fuels need to be made available across state boundaries if they are to be realistically used. This again points clearly to federal leadership.

3. Proposed Legislation

To solve these problems it will be necessary to provide incentives. These incentives can take the form of monetary credits for production and purchase of vehicles (i.e. Danforth proposal). Another approach would be to mandate vehicle production, fuel availability and use of such vehicles. The latter is, in our opinion, the most effective. A step-wise progression to gradually introduce mandated usage and monitor the efficacy of such a program seems to be the responsible approach. This would also provide a guaranteed market for auto/bus manufacturers, allowing them to invest in such technologies.

For such a program to work the legislation must:

A) Empower/mandate EPA to select a fuel that has the most promise on a national basis. The introduction of fleet vehicles, if successful, should pave the way for commercialization of private autos and trucks. Nothing done in this legislation should make such a progression more difficult. If each state had different fuels, inter-state car usage would be extremely complex. Even for fleet vehicles it would greatly simplify the cars operation if it could obtain full outside of State boundaries.

Additionally, the full R/D efforts of the manufacturers will be necessary to bring such vehicles into the market. Multiple car types will make that more difficult. The legislation could select a fuel with the option for a locality or manufacturer to choose another fuel if it provided the same environmental benefit.

B) EPA must be mandated to set fuel specifications and emissions standards for engines. The manufacturers are otherwise shooting at a moving target. We believe the best approach would be to mandate dedicated vehicles. The emissions results for flexible fuel (those capable of running on mixtures of fuels) vehicles are disappointing. These are compromised vehicles, which in testing, have shown even higher emissions of some pollutants, particularly CO, and NOX than even the gasoline vehicle. Their primary purpose would be to pave the way for the future dedicated vehicle by providing a transitional mode. I don't believe this is fruitful and may actually be harmful, if the limited R/D resources being expended by car manufacturers is diverted away from the ultimate goal of dedicated vehicles.

C) Usage of such vehicles must be phased in. A proposal mandating 10% of all fleet vehicles purchased by 1991 to be alternative fuel vehicle seems reasonable, recognizing the need for R/D with mandate to produce. The ability of manufacturers to produce and the fleet operators to train drivers and mechanics must be considered. Practical goals must be set.

D) Federal funds should be made available for conversions. Government vehicles represent a large proportion of fleet vehicles, subsidies would be appropriate.

While the legislation must be technology forcing it must allow for the rational development of vehicles with optimized emissions characteristics and operational reliability.

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TESTIMONY OF THE HONORABLE DOUG SUTHERLAND

MAYOR OF TACOMA

GOOD MORNING LADIES AND GENTLEMAN, MY NAME IS DOUG SUTHERLAND AND I AM THE MAYOR OF TACOMA, WASHINGTON. I AM HERE TODAY AS BOTH THE MAYOR OF TACOMA AND THE CHAIRMAN OF THE UNITED STATES CONFERENCE OF MAYORS' STANDING COMMITEE ON ENERGY AND ENVIRONMENT.

JOINING ME TO PRESENT TESTIMONY ON THE ISSUE OF CLEAN AIR, ITS DEADLINES AND THE SANCTIONS THAT FACE ALL CITIES FOR FAILURE TO ACHIEVE THE STANDARDS OF AMBIENT AIR QUALITY, ARE MAYORS EDWARD KOCH OF NEW YORK, KATHY WHITMIRE OF HOUSTON, PEGGY MENSINGER OF MODESTO AND TONY KNOWLES OF ANCHORAGE.

THESE PROCEEDINGS ARE BEING TAPED AND WILL BE PRESENTED TO THE SENATE ENVIRONMENT SUBCOMMITTEE AND ITS CHAIRMAN, SENATOR GEORGE MITCHELL OF MAINE. THE COMMITTEE IS AT THIS VERY MOMENT HOLDING HEARINGS ON LEGISLATION THE SENATOR HAS AUTHORED ON THE ISSUE OF NONATTAINMENT. IT IS OUR INTENTION TO PRESENT THIS TAPE TO THE SENATOR AND ASKED THAT IT BE MADE A PART OF TODAY'S RECORD.

BECAUSE WE ARE TAPING THESE PROCEEDINGS FOR PRESENTATION TO THE CONGRESS, WE WOULD ASK THAT YOU WITHHOLD ANY QUESTIONS UNTIL AFTER MAYOR KNOWLES HAS TESTIFIED. EACH OF THE MAYORS HAS INDICATED THEIR WILLINGNESS TO ANSWER YOUR QUESTIONS AT THAT TIME.

GOOD MORNING SENATOR MITCHELL, I AM DOUG SUTHERLAND THE MAYOR OF TACOMA AND THE CHAIRMAN OF THE UNITED STATES CONFERENCE OF MAYORS STANDING COMMITTEE ON ENERGY AND ENVIRONMENT. I AM JOINED TODAY BY MAYORS KOCH OF NEW YORK, WHITMIRE OF HOUSTON, MENSINGER OF MODESTO AND KNOWLES OF ANCHORAGE.

AS A REPRESENTATIVE BODY OF THE MAYORS OF AMERICA'S PRINCIPAL CITIES, WE THANK YOU FOR THE LEADERSHIP YOU AND YOUR COMMITTEE ARE SHOWING IN ADDRESSING THE ISSUE OF NONATTAINMENT OF AMBIENT AIR QUALITY. WE MUST HAVE LEGISLATION THAT ADDRESSES THIS ISSUE, FOR DESPITE THE GOOD FAITH EFFORTS OF ALMOST ALL CITIES, NO LESS THAN 303 CITIES, WITH POPULATIONS 30,000 AND ABOVE, FACE SANCTIONS AND LITIGATION FOR FAILING TO ACHIEVE AMBIENT AIR QUALITY. S. 1351 IS A VALUABLE FIRST STEP TOWARD ACHIEVING THIS LEGISLATION.

I APOLOGIZE THAT WE HAVE BEEN UNABLE TO FULLY EXAMINE YOUR LEGISLATION, AS WE HAVE BEEN MEETING HERE IN NASHVILLE WITH THE PRESIDENTIAL CANDIDATES. STILL, WHAT WE HAVE SEEN IS VERY ENCOURAGING. THE RECOGNITION IN S. 1351 THAT THERE EXISTS VARYING DEGREES OF NON COMPLIANCE AND THEREFORE VARYING DEADLINES SHOULD BE MANDATED IS A FIRST FOR CONGRESS. ANOTHER FIRST IS THE LEGISLATION'S SENSITIVITY TO THE ISSUE OF REGIONAL TRANSPORT OF OZONE FORMING POLLUTANTS. WE ARE ALSO ENCOURAGED THAT THE COMMITTEE HAS ACKNOWLEDGED THE VITAL ROLE THAT RESOURCE RECOVERY PLANTS ARE PLAYING IN OUR CITIES BY EXEMPTING SUCH FACILITIES FROM THE CONSTRUCTION MORATORIUM ON STATIONARY SOURCES.

IN OUR STANDING POLICY COMMITTEE AND IN OUR RESOLUTION COMMITTEE, WE ADOPTED TWO RESOLUTIONS PERTAINING TO THE CLEAN AIR ACT. IN THESE RESOLUTIONS WE CALLED UPON CONGRESS TO FIRST AND FOREMOST AMEND THE CLEAN AIR ACT BEFORE DECEMBER 31, 1987, SUCH THAT

NONATTAINMENT AREAS ARE ALLOWED ADEQUATE REALISTIC AMOUNTS OF TIME TO REACH THE AIR QUALTIY STANDARDS FOR OZONE AND CARBON MONOXIDE;

REGIONAL TRANSPORT OF OZONE AND OZONE FORMING POLLUTANTS IS ADEQUATELY ADDRESSED;

SANCTIONS SHOULD BE IMPOSED ONLY WHEN STATES AND CITIES HAVE NOT MADE GOOD FAITH EFFORTS TO COMPLY WITH THE REQUIREMENTS OF THE CLEAN AIR ACT;

EPA IS REQUIRED TO SET COLD TEMPERATURE FEDERAL TEST PROCEDURES FOR VEHICLES AND

RESEARCH BE CONDUCTED ON THE CAUSES OF THE OZONE PROBLEM AND ALTERNATE CONTROL STRATEGIES.

COPIES OF THESE RESOLUTIONS WILL BE FORWARDED WITH COPY OF THIS TAPE AND I LOOK FORWARD TO WORKING YOU AND YOUR COMMITTEE AND ITS CHAIRMAN, AS YOU GUIDE THIS LEGISLATION THROUGH THE CONGRESS.

MAYOR KOCH

MAYOR WHITMIRE

MAYOR MENSINGER

MAYOR KNOWLES

MIC
MOTORCYCLE INDUSTRY COUNCIL, INC.

Government Relations Office
Washington, D.C.

STATEMENT OF

THE MOTORCYCLE INDUSTRY COUNCIL, INC.

BEFORE THE

SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION

JUNE 16, 1987

1235 Jefferson Davis Hwy., Suite 1410 • Arlington, VA 22202 • (703) 521-0444

Mr. Chairman, members of the Subcommittee, I am Melvin R. Stahl, Vice President Government Relations, Motorcycle Industry Council, Inc. I appreciate this opportunity to express our views on Senate Bill 1351, Clean Air Standards Attainment Act of 1987.

The Motorcycle Industry Council, on behalf of its member companies who manufacture and distribute approximately 92% of the motorcycles sold in the United States, requests that the provision of S. 1351 applicable to exhaust and evaporative emissions from motorcycles and motorcycle engines manufactured during and after model year 1992 be removed from consideration. The provision requires that regulations contain standards that provide that such emissions may not exceed levels equivalent to those applicable to light-duty vehicles. Such a requirement is unnecessary, and unachievable for most motorcycles with existing or forseeable technology, and to the extent achievable, it will be only at an unacceptable performance and cost penalty to the consuming public.

On October 22, 1975, the EPA published a Notice of Proposed Rulemaking (NPRM) for the control of exhaust and crankcase emissions from new motorcycles. The NPRM contained proposed emission standards for 1978 and 1979 model year motorcycles of 5 g/km (HC) for engine displacements less than 170cc, 5 to 14 g/km for displacements between 170 and 750cc and 14 g/km above 750cc. (CO) and (NO_x) standards proposed were 1.7 g/km and 1.2 g/km respectively. For model year 1980 and later, it was proposed that motorcycles be controlled to the ultimate light-duty vehicle standards (statutory standards).

The Environmental Protection Agency, in promulgating the final rule, stated "the 1978 standards were achievable, but that implementation of the statutory standards was not technically feasible as early as 1980 and that control to that level would not be cost effective." The NO_x standard was also deleted because "an air quality analysis indicates that the motorcycle contribution to motor vehicle NO_x emissions is negligible, being less than one half of one percent in 1990."

The factors considered by the EPA in arriving at these conclusions remain unchanged today, except that motorcycle impact is even less significant than the projections upon which the need for any regulation was based. For example, the EPA total motorcycle emissions was based on motorcycle population estimates of 7.6 million registered vehicles in 1980 and 12.3 million by 1990. In reality there were 5.8 million motorcycles in use in 1980 and 1990 is estimated to be approximately 3.8 million, less than 1/3 of the earlier projections. (Attachment 1)

The Council on Wage and Price Stability also reviewed the proposed regulation and concluded the following: "Substantial evidence, based on EPA's own data, that the proposed uniform standard would not be as cost-effective for motorcycles as the equivalent standards have been for automobiles and other pollution sources; and substantial evidence that motorcycle emissions are not now and would not become a problem sufficient to require nationwide regulation in the public interest." It is our belief that this early critique is still valid.

Motorcycles have been and continue to be a negligible source of air pollution. Based on the EPA's 1985 estimates, on-highway motorcycles contributed less than three tenths of one percent of all the volatile organic compound (VOC) emissions from all sources, and less than one percent of all transportation VOC emissions. In comparison, passenger cars and trucks accounted for 28% of all VOC emissions in 1985. The relative contribution of CO emissions from motorcycles was even less than VOC emissions in 1985.

Even though motorcycles contributed less than 1% of all VOC emissions before controls, major reductions in motorcycle emissions have been achieved since 1975. From an uncontrolled level in 1975 to 1985, VOC emissions from motorcycles had already been reduced 67%, based on EPA estimates. This compares with only a 7% reduction for all sources. According to EPA estimates, VOC emissions from sources other than highway vehicles, particularly stationary fuel-combustion sources, have actually increased 11% from 1975 to 1985. (Attachment 2)

Since 1980, motorcycle emission levels have been certified below the HC and CO EPA standards. This decline in certification levels has occurred, even though the standards remained at that level. However, further reductions from current certification levels will not be possible unless significant breakthroughs in engine technology occur and such breakthroughs are not anticipated in the forseeable future.

Additional motorcycle VOC emissions reductions have occurred since 1985, as a result of unfavorable market forces. On-highway motorcycle new registrations declined 41% from 1975 to 1985, and another 17% from 1985 to 1986. An additional decline of 17% has been reported for the first four months of 1987. (Attachment 3)

Motorcycles are such small contributors to mobile source emissions and an infinitesimal part of emissions from all sources when motorcycle use patterns are considered, that no measurable air quality improvement would be realized by further reducing the motorcycle standards. It is even arguable that removal of the entire motorcycle fleet would not be detected when measuring for ambient air quality.

Although motorcycles and light-duty vehicles are both equipped with gasoline-fueled, spark ignition, four-stroke-cycle engines, there is little other similarity with regard to exhaust emissions and control. Many models of motorcycles are air cooled and the number of cylinders may vary from one to six. Engine displacements currently vary from 50cc to 1400cc and motorcycle engines generally operate at twice the engine speeds of light-duty vehicle engines. Vehicle weight may vary from less than 200 lbs. to a maximum allowed of 1499 lbs.

Motorcycle design is also unique in that there is no engine compartment, floor pan, trunk, or other area to accommodate or shield various components and devices as there is in an automobile. Motorcycles are used differently and have a significantly different "useful life." Motorcycles are sold in much smaller numbers and within these small numbers there are manufacturers who sell less than 10,000 units per year.

The EPA recognized these very material differences between the motorcycle and light-duty vehicle when it established similar but different standards and testing procedures for motorcycles. The initial motorcycle standards were displacement dependent. Motorcycles are divided into 3 classes based on engine displacement. Useful life is 5 years or 12,000 km for class one, 5 years or 18,000 km for class two and 5 years or 30,000 km for class three. The certification test driving cycle is different and certain certification requirements vary for small volume manufacturers.

Current emission control systems are simple and durable (engine modification and air injection). The result is stable emissions performance over the life of the motorcycle. Generally, HC emissions remain fairly constant over the life of the motorcycle, and CO emissions actually decrease. The more complex the emission control system, the greater the likelihood that higher deterioration rates for in-use vehicles will occur, as experience with passenger cars and light-duty trucks indicates.

To meet the proposed standards, catalysts would be needed on all models. Even with catalysts, many models would not be able to comply. To date, manufacturers have not been able to demonstrate good catalyst durability under all conditions that can be encountered during normal operation. Although favorable results have been obtained for laboratory dynamometer testing, durability is very sensitive to the operating environment, the riding habits of the operator, and maintenance of the machine. Malfunctions (such as misfiring) or improper use (such as overuse of the choke) can lead to catalyst failure.

For catalyst-equipped motorcycles, HC and CO emissions deteriorate more than the stable emissions of current motorcycles. HC and CO can increase more than two-fold during the motorcycle's useful life, even with the vehicle properly maintained.

Base emissions for catalyst vehicles are higher than current motorcycles. Tampering (catalyst removal) or catalyst failure causes a drastic emissions increase. Even a modest tampering rate for catalyst motorcycles could negate the intended air quality benefit of the proposed standards.

There would be no way to control tampering without motorcycle inspection and maintanance programs (I & M). Although the EPA has developed "short tests" for automobile I & M compliance testing, none of these tests is appropriate for motorcycles. Currently, only the Federal Test Procedure, which cannot be performed practically at state inspection stations, can be used to determine compliance with Federal motorcycle exhaust emission standards.

In order to implement an emission inspection program for motorcycles, a suitable short test procedure must be developed which can identify vehicles that would not meet the Federal standard. Additional difficulties will be encountered in identifying which model year motorcycles are to be inspected and then establishing a reasonable pass-fail criteria for them, since motorcycles have only been subject to EPA emissions standards since 1978. Motorcycle usage is at its peak during the first year of ownership and vehicle miles traveled decline rapidly in subsequent years.

Motorcycles represent about 2% of the total motor vehicles registered. They accumulate approximately ½ of 1% of the total vehicle miles traveled on public roads by all motor vehicles; and the greatest mileage accumulation occurs on weekends when emissions from other mobile sources are at a minimum.

The costs incurred in establishing a program for motorcycles must be weighed against the improvement in air quality that might be achieved.

The states thus far, with the exception of pilot programs in the Phoenix-Tucson area and Portland, Oregon, have determined that, since the impact on air quality resulting from the inclusion of motorcycles in I & M programs will be slight, motorcycle I & M has no cost benefit and is unnecessary.

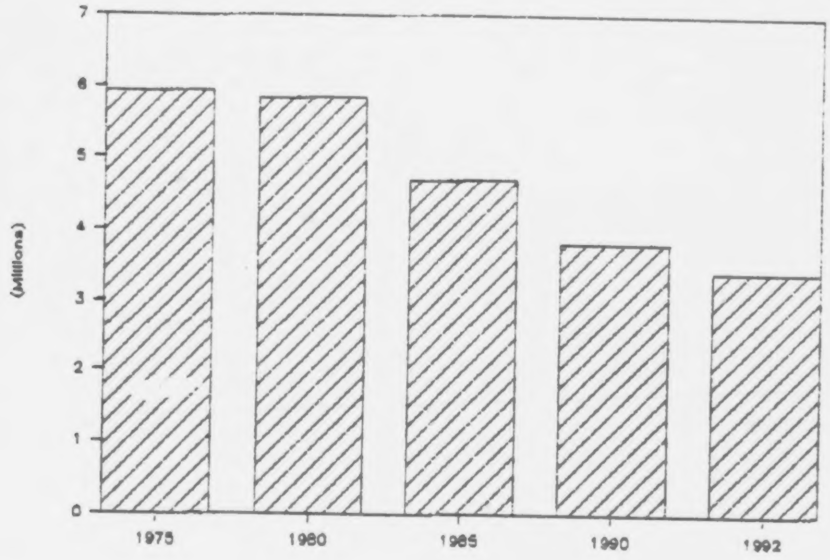
The motocycle industry shares the Subcommittee's concerns for the environment and believes we are continuing to do our share. In an action without precedent, this industry in 1973 specifically asked the EPA to regulate our products as an alternative to the continued failure of agreement on or acceptance of meaningful transportation control strategies. The motorcycle industry is regulated and is complying, although not without difficult and continuing burdens that are particularly pressing on small manufacturers.

We ask the Congress, in addressing non-attainment, to focus on sources that are not regulated at this time rather than impose further reductions that very well may not be achievable, on a currently regulated, fully complying source. Again we ask that the provision in S. 1351 requiring motorcycles to comply with light-duty vehicle regulations be removed from consideration.

Thank you.

Attachment 1

ESTIMATED ON-HIGHWAY MOTORCYCLE POPULATION
1975 - 1992



1975	5,935,000
1980	5,835,000
1985	4,690,000
1990	3,800,000
1992	3,600,000

Source: 1975 - Survey of Motorcycle Ownership, Usage & Maintenance, conducted for the Motorcycle Industry Council by Gallup Organization, Princeton, New Jersey, January 1975.

1980 &
1985 - 1980 and 1985 Survey of Motorcycle Ownership and Usage, conducted for the Motorcycle Industry Council by Burke Marketing Research, Inc., Cincinnati, Ohio, April 1981 and February 1986.

1990 &
1992 - Estimated based on the average annual decline from 1980 to 1985 (229,000), adjusted to a slower rate of decline of 178,000 for 1986 to 1990 and 100,000 for 1991 and 1992.

Attachment 2

Estimated VOC Emissions Nationwide

1975 vs. 1985

	1975		1985		% Change
	Gigagrams/ Year	% of Total	Gigagrams/ Year	% of Total	Gigagrams/Yr 75 vs. 85
All Sources	22,800	100.00%	21,300	100.00%	- 6.6%
On-Highway Motorcycles	180	0.79%	60	0.28%	- 66.7%
Passenger Cars & Trucks	8,770	38.46%	5,938	27.88%	- 32.3%
All Other Sources	13,850	60.75%	15,302	71.84%	+ 10.5%

Estimated CO Emissions Nationwide

1975 vs. 1985

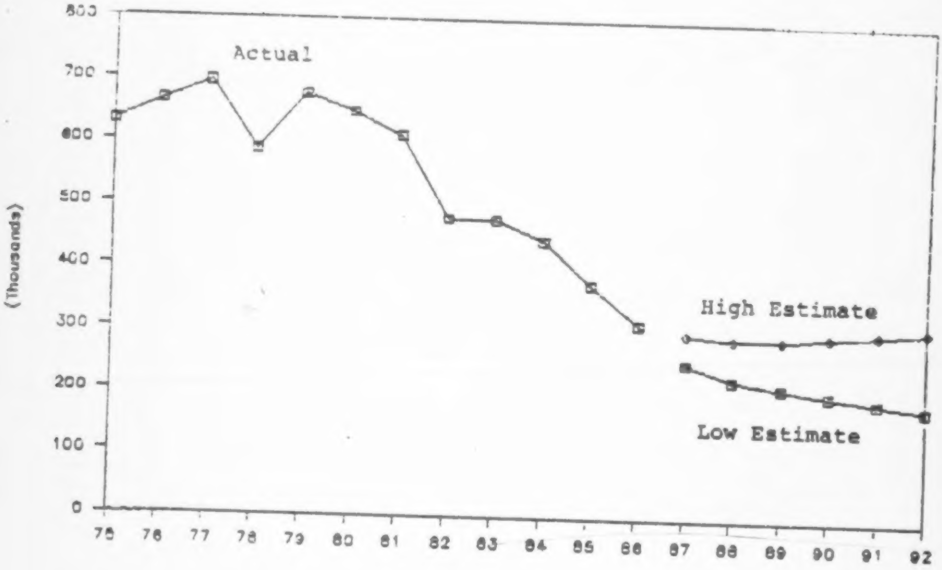
	1975		1985		% Change
	Gigagrams/ Year	% of Total	Gigagrams/ Year	% of Total	Gigagrams/Yr 75 vs. 85
All Sources	81,000	100.00%	67,500	100.00%	- 16.7%
On-Highway Motorcycles	510	0.63%	160	0.24%	- 68.6%
Passenger Cars & Trucks	53,650	66.23%	40,577	60.11%	- 24.4%
All Other Sources	26,840	33.14%	26,763	39.65%	- 0.3%

Gigagram = Billion grams

Source: National Air Pollutant Emission Estimates, 1970 - 1985, U.S. Enviromental Protection Agency, EPA-450/4-86-018.

Attachment 3

On-Highway New Motorcycle Registrations
1975 - 1992



	Actual	% Change
1975	631,875	
1976	664,436	+ 5.0%
1977	694,296	+ 4.0%
1978	586,799	- 15.0%
1979	674,574	+ 15.0%
1980	647,605	- 4.0%
1981	610,034	- 6.0%
1982	478,516	- 22.0%
1983	477,451	0.0%
1984	444,451	- 7.0%
1985	374,966	- 16.0%
1986	312,821	- 17.0%

	Low Estimate	% Change	High Estimate	% Change
1987 est.	250,300	- 20.0%	297,200	- 5.0%
1988 est.	225,200	- 10.0%	291,200	- 2.0%
1989 est.	214,000	- 5.0%	291,200	0.0%
1990 est.	203,300	- 5.0%	297,100	+ 2.0%
1991 est.	193,100	- 5.0%	303,000	+ 2.0%
1992 est.	183,500	- 5.0%	309,100	+ 2.0%

Source: New Motorcycle Registrations, R.L. Polk & Company, Detroit, Michigan.
Motorcycles under 50cc excluded.

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
2358 MUNICIPAL BUILDING, NEW YORK, N.Y. 10007 (212) 669-8200

HARVEY W. SCHULTZ
Commissioner

July 29, 1987

Senator George J. Mitchell
United States Senate
Committee on Environment and Public Works
Washington, D.C. 20510-6175

Dear Senator Mitchell:

I would like to provide responses to the clarifications requested by yourself, Senator Chafee and Senator Simpson regarding my testimony before the Senate Environment and Public Works Subcommittee on Environmental Protection on March 26, 1987. Although there is some repetition in the responses to certain questions, our answers have been structured to correspond to the list of questions from each senator.

Questions from Senator Mitchell

1. What control strategies have you put in place in your region?

The Ozone control measures that were committed to in the New York City metropolitan area SIP are listed in the attached table with an indication of status. The "Reasonable Further Progress in 1985 Toward Attainment of Both Carbon Monoxide and Ozone Standards in the New York City Metropolitan Area" report includes a section on individual control measure evaluation.

2. What control strategies were rejected and why?

Several control strategies that were considered and rejected are:

- controls on outboard motors - this idea was rejected for several reasons, including the unavailability of a retrofit strategy, problems with enforcement and the replacement of only a small number of motors by new sales by 1988.

- controls on gasoline powered lawn mowers - this was considered unenforceable and was not estimated as providing a measurable benefit.

- increasing the stringency from RACT to BACT - this was rejected since RACT was not defined for many of the sources and that the majority of the sources that could be additionally controlled were small sources and did not provide a noticeable reduction in emissions. At the time that this strategy was considered, New York would have required control strategies that provided small reductions which surrounding areas were not mandating. Clearly if this were a national change, any hardship to be incurred would be equally felt.
- increasing the stringency of the I/M program - there was no benefit gained by increasing the stringency from 30% to 40%. A greater benefit was attained by instituting the two speed idle test.

3. What has been the greatest impediment to your ability to reduce emissions in order to reach attainment?

We believe that our inability to effectively model the transport of ozone and its precursors has played a large role in our not reaching the ozone standard. Recent work by New York State Department of Conservation and U.S. EPA with the OMNYMAP model supports the belief that the ozone standard is not attainable in New York with only the implementation of control strategies applied to sources within the state. We believe that this inability to quantify the emissions that are being transported into the region and the level of emission reduction being applied to those emission sources has prevented us from accurately predicting the emissions reductions we need and the level of reduction that must come from contributing areas for this region to reach attainment.

4. What are the major sources of air pollution in your region?
5. What percentages of emissions are from mobile sources? What percentages are from regional transport?

Motor vehicles are the major sources of both carbon monoxide and ozone precursors in this area. Based on 1985 data, 90% of the carbon monoxide emissions and 50% of the VOC emissions were produced by mobile sources.

6. When do you believe your region will reach attainment?

This is a difficult question to respond to when critical pieces of information necessary to make an informed decision are still being studied. Giving consideration to the completion of work on transport, the generation of regulations to facilitate the implementation of technically feasible but regulatory unavailable control strategies, and the implementation of control strategies with a period of time to allow the measurement of their effectiveness, it is difficult to predict our ability to reach attainment in less than ten years.

7. What additional control measures will be necessary for you to reach attainment?

The major areas that are available to us to control further are mobile sources and small industrial sources. At this point, we feel that mobile sources will require the implementation of Stage II, on-board canisters, and enhanced I/M. We feel that there is an additional benefit to be gained from the implementation of regulations that reduce gasoline evaporative emissions. We do not believe that these measures will be sufficient to reach attainment of the ozone standard. We believe that it is possible to reduce the emissions from small sources that are not yet controlled but the percentage reductions expected are extremely small. These measures may not bring us into attainment. We have not been able to quantify the possible emissions benefits as the existing inventory does not identify individual small sources but treats them as a single category of emissions.

8. What other efforts would have been necessary for you to reach attainment of the deadlines?

We believe that at a minimum it was necessary to have the issue of transport studied and a mechanism to implement strategies dealing with regional transport in place to assess whether our original efforts were sufficient to reach attainment by the deadline. Although we may or may not have been able to reach attainment, we feel that additional Federal guidance and/or regulations were needed to allow us to implement all technically available control strategies.

9. Has your region explored the use of alternative fuels in order to control the formation of ozone?

We have been interested in the use of alternative fuels and had incorporated a proposal to study alternative fuel vehicles for the purpose of achieving localized carbon monoxide reductions along highly congested streets in our central business district in our SIP. Although this study has been delayed, the City is now exploring the use of alternative fuels to achieve ozone benefits. This new effort has resulted in the formation of the City's interagency Taskforce on Alternative Fuels. Work has been done summarizing available, current literature. We have also discussed the concept with Federal EPA, other state's agencies and the auto manufactures. We are in the process of implementing a light duty vehicle test program and are the test site for an EPA methanol bus demonstration project.

New York State has also been exploring an alternative fuel program through the efforts of their Energy, Research and Development Authority. Work has been done to test first generation methanol bus engines.

10. Have you assessed the environmental impact of alternative fuels both in New York and areas downwind from New York?

We feel that the program that we are in the process of implementing will provide information on the environmental impacts. We have discussed the use of these results in modeling efforts to define the affect on New York and areas downwind that are to be done with the OMNYMAP model with NYS DEC.

Questions from Senator Chafee

1. Have you been able to identify how much of the problem is being caused by mobile sources as compared to stationary sources?

See response to question 5, Senator Mitchell.

2. a. How difficult is it to control the "non-point sources" of pollution?
   b. Is it easier to control the point sources?
   c. What percentage of the problem is caused by non-point sources as opposed to point sources?

2a. From a technical viewpoint, non-point sources are extremely difficult to control since you cannot simply filter the emission. Emission reductions require more dramatic techniques such as reformulating the product, substituting less polluting chemicals for those responsible for the harmful emissions. An added difficulty involves regulation of these processes. Often state and local action is preempted by federal jurisdiction.

2b. It is generally easier to control point sources basically because they represent a more definable problem. However, there are point source processes that cannot be controlled by existing technology. In addition, the design of and cost to implement the technology to control emissions may be of a similar degree of difficulty for both point and non-point sources.

2c. The attached copy of our VOC inventory provides this information.

3. To what extent is the involvement of several different state agencies a problem?

As with all interagency coordination efforts, program goals and budget needs are major sources of competition with each agency/office necessarily supporting its own interests.

In our experience, it is more frequent for NYC's Department of Environmental Protection and Department of Traffic to support similar goals relating to compliance with the standards based on the strong connection between improved traffic flow and reduced carbon monoxide emissions.

Questions from Senator Simpson

1. As the ozone deadline approaches, it is clear that we have to take a look at control strategies over the long-term. With that as our perspective, isn't it preferable to expand the already existing control systems on cars? Isn't it more effective at capturing emissions than the Stage II system, even by EPA estimates?

The technical information that we have reviewed indicates that automobile canisters are slightly more efficient at controlling vapor release than is Stage II equipment. The material seems to consider only the theoretical advantage of the canisters, and does not discuss operational or implementation factors which could affect the actual performance of either strategy. I would point out that our views are based completely on review of research done by others, we have conducted no direct research of our own.

2. If EPA should decide not to choose onboard controls, won't states be forced to implement Stage II controls in nonattainment areas? Won't these controls make it more difficult for consumers, especially the elderly, to refuel their automobiles?

The New York State SIP contains a commitment to implement Stage II controls. Any change to this commitment must be based on the availability of alternate strategies (e.g., on-board vapor recovery controls) to produce emissions reductions at least equal to Stage II controls.

Our observations of Stage II installations indicate that Stage II equipment is somewhat more difficult for the customer to manipulate than current equipment. However, we understand that improvements have been made, and are still being made, to the Stage II equipment to improve its ease of use.

3. Won't Stage II controls be especially burdensome to small, independent service station owners, costing them on average $21,000 per station in capital expenses and around $2,000 per year to maintain?

The New Jersey Department of Environmental Protection, in the analysis they prepared for their proposed Stage II vapor recovery regulations, estimated capital costs of $18,000 - $28,000 for facilities with a monthly throughput of 200,000 gallons; with an associated annual operating cost of about $1600. For a small facility with a monthly throughput of 10,000 gallons, the estimates were $7000 for capital costs and $300 for annual expenses.

Thank you for this opportunity to provide clarification for the record.

Sincerely,

Harvey W. Schultz

cc: Stanley Brezenoff
Robert Esnard

TABLE 1

Schedule for Development of the Ozone
Control Program for the New York City Metropolitan Area

Control Measure	Begin Study	End Study	Draft Regulation	Public Hearing	Adopt Regulation	Current Status
Reasonably Available Control Measures:						
Stationary Source Measures:						
Controls at Major Facilities-Revise 228 & 234	N/A	N/A	C	C	C	C
Gasoline Tank Truck Controls-New 230	C	C	C	C	C	C
Reevaluation of RACT-Policy Memo	C	C	N/A	N/A	C	C
External Floating Roof Tanks-Revise 229	N/A	N/A	C	C	C	C
Group III CTG - Manuf. of PPP Resins	N/A	N/A	N/A	N/A	11/30/84(*)	C
Mobile Source Measures:						
Light Duty Vehicle I/M						
20% Stringency	C	C	C	C	C	C
30% Stringency	C	C	C	C	C	C
Two-Speed idle Test	C	C	5/86	7/86	10/86	Delayed
Anti-Tampering	C	C	N/A	N/A	N/A	C
Heavy Duty Gasoline Truck I/M	C	C	C	C	C	C (+)
Transportation Measures	C	C	N/A	N/A	I	O.S.
Extraordinary Measures:						
Stationary Source Measures:						
Stage II Gasoline Station Controls-Revise 230	C	C	C	4/85	6/85	Delayed
New PACT for Small Sources-Revise 212	N/A	N/A	C	C	C	C
Automotive Body Shop	C	1/85	U	6/85	1/86	Delayed
Architectural Coatings	C	1/85	U	6/85	1/86	Delayed
Consumer/Commercial Solvent Use	4/84	7/85	U	U	7/86	Delayed
Contingency Measure:						
Controls on Existing Dry Cleaners (Perchloroethylene)	N/A	N/A	U	10/85	1/86	Uncertain

C = Completed
N/A = Not applicable
U = Unknown - no schedule provided in SIP.
OS = On schedule
I = Control measures will be implemented through 12/31/87.
* = State certified no existing sources.
+ = Mandatory inspection/voluntary repair began February 1, 1985;
mandatory repair began on February 1, 1986

Source: "Reasonable Further Progress In 1985 Toward Attainment of Both The CO and Ozone Standards in NYCMA", NYSDEC , 7/86.

II

100TH CONGRESS
1ST SESSION

S. 1351

To amend the Clean Air Act to establish new requirements for areas that have not yet attained the health-protective ambient air quality standards, to provide new deadlines for such attainment, to delay the imposition of sanctions, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JUNE 10, 1987

Mr. MITCHELL (for himself, Mr. CHAFEE, Mr. STAFFORD, Mr. BAUCUS, Mr. MOYNIHAN, Mr. DURENBERGER, Mr. GRAHAM, Mr. DODD, and Mr. WIRTH) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

---

A BILL

To amend the Clean Air Act to establish new requirements for areas that have not yet attained the health-protective ambient air quality standards, to provide new deadlines for such attainment, to delay the imposition of sanctions, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Clean Air Standards Attainment Act of 1987".

TITLE I—REQUIREMENTS FOR NONATTAINMENT AREAS

EXTENSION CONDITIONS

SEC. 101. (a) Section 172(a) of the Clean Air Act is amended by adding the following new paragraph:

"(3) In the case of a nonattainment area that has been unable to attain the national primary ambient air quality standard for photochemical oxidants (ozone) or carbon monoxide (or both) by the date of enactment of this paragraph, despite good faith efforts to comply with this part and the implementation of all measures in approved or submitted implementation plans, the State may submit a revised implementation plan for such area in accordance with subsections (b), (c), and (d) that provides for the attainment of the national primary ambient air quality standard as expeditiously as practicable but not later than December 31, 1992.".

(b) Section 172(c) of the Clean Air Act is amended by inserting "(1)" after "(c)" and by adding the following new paragraph:

"(2) In order to submit a revised implementation plan under subsection (a)(3), a State must submit—

"(A) not later than three months after the date of enactment of this paragraph, a commitment in writing, signed by the Governor and the principal elected official of each local government or air pollution control agency with a formal role under State law in the development of implementation plans, that the State will submit a revised implementation plan in accordance with this section; and

"(B) not later than December 31, 1989, a revised implementation plan in accordance with this section.".

(c) Section 172 of the Clean Air Act is amended by adding the following new subsections:

(d) In addition to the provisions required by subsection (a), an implementation plan complying with subsection (a)(3) must require:

"(1) the operation of a vehicle emission control inspection and maintenance program;

"(2) the operation of systems for gasoline vapor recovery of hydrocarbon emissions emanating from the fueling of motor vehicles, in photochemical oxidant (ozone) nonattainment areas required to have vehicle emission control inspection and maintenance programs;

"(3) a specific schedule for requiring or otherwise implementing the use of alternative fuels or power sources with lower emission characteristics for all centrally fueled fleets comprising fifty or more vehicles operating in the nonattainment area;

"(4) reduction in emissions of hydrocarbons and oxides of nitrogen from existing sources in any photochemical oxidant (ozone) nonattainment area through the adoption, at a minimum, of reasonably available control technology, unless in the case of oxides of nitrogen, the State can demonstrate that reasonably available control technology for all existing sources of oxides of nitrogen is not necessary for the attainment of the national primary ambient air quality standard for photochemical oxidant (ozone) by the date specified in subsection (a)(3);

"(5) that reductions in emissions required by the implementation plan for existing sources or for new sources cannot be met or complied with through reductions in allowable emissions at other sources;

"(6) compliance by new or modified major stationary sources within the nonattainment area with the lowest achievable emission rate;

"(7) the adoption of reasonably available control technology for categories identified by a regional body under section 178; and

"(8) such other measures as may be necessary to provide for attainment of the applicable national primary ambient air quality standard not later than December 31, 1992.

"(e)(1)(A) If a State determines prior to the submission of a commitment in writing under subsection (c)(2)(A) or the submission of a revised implementation plan under subsection (c)(2)(B) that attainment of a national primary ambient air quality standard by the date specified in subsection (a)(3) is not possible in a nonattainment area despite the implementation of the requirements of subsection (d) and all reasonably available measures (together with implementation of the provisions of title II, section 130, and other provisions of this Act), the implementation plan for such nonattainment area shall comply with this subsection in lieu of subsection (a)(3).

"(B) Each nonattainment area in which the second highest daily maximum one-hour average concentration of ozone during any of the most recent three years for which there is adequate information exceeds the national primary ambient air quality standard by more than 50 per centum shall be presumed to be unable to attain such standard by the date specified, and the State shall submit and implement an implementation plan for such area in accordance with this subsection, unless such State submits an implementation plan demonstrating attainment by the date specified in subsection (a)(3).

"(C) The requirements of paragraph (2) of this subsection shall not apply in the case of any nonattainment area within a control region defined in section 178 for which the State demonstrates that the control measures implemented under subsection (d) in such nonattainment area, together with the control measures required throughout the region under section 178 and the control measures required in other nonattainment areas under this subsection and subsection (d), provide for attainment in such nonattainment area by the date specified in subsection (a)(3), or in any event, a date not later than such standard would have been attained through the implementation in such nonattainment area of the requirements of paragraph (2).

"(2) In addition to the requirements of subsection (d) (other than paragraph (8)), an implementation plan for a nonattainment area complying with this subsection shall require:

"(A) the identification and adoption of specific enforceable strategies and transportation control measures to offset any growth in vehicle miles traveled in such nonattainment area, or to offset any increases in emissions associated with such growth in vehicle miles traveled, and to attain reductions in mobile source emissions as necessary to comply with subparagraph (B). The State shall consider, at a minimum, the following measures and if the State fails to include any measure, the implementation plan shall contain an explanation of why such measure was not adopted and what emissions reduction measure was adopted to provide a comparable reduction in emissions:

"(i) programs to limit or restrict vehicle use in downtown areas or other areas of emission concentration, particularly during periods of peak use, through road user charges, tolls, parking surcharges or other pricing mechanisms, vehicle restricted zones, vehicle restricted periods, registration conditions or other devices;

"(ii) limitation of certain roads or lanes to common carriers or to high occupancy vehicles;

"(iii) programs for improved public transit;

"(iv) requirements for major employer participation in programs to encourage use of public transit and multiple occupancy vehicles, and in programs providing alternative work hours (including staggered hours and the compressed work week);

"(v) requirements for the conversion of fleet vehicles to cleaner engines or fuels, or to otherwise control fleet vehicle operations;

"(vi) traffic flow improvements;

"(vii) trip reduction ordinances

"(viii) programs for areawide ridesharing.

"(B) in the case of a nonattainment area for photochemical oxidants (ozone), an annual reduction in emissions of hydrocarbons (measured as volatile organic compounds) and of oxides of nitrogen, and in the case of a nonattainment area for carbon monoxide, an annual reduction in emissions of carbon monoxide, from the total emissions of such pollutant in such area during 1987 (or the most recent previous year for which there is an emissions inventory approved by the Administrator), so that at the end of each calendar year the total reduction equals 8 per centum of the emissions remaining in the inventory for each of the years elapsed since January 1, 1988. The requirement of this subparagraph shall not apply until the end of 1989. A State may substitute in the implementation plan for 8 per centum the annual percentage the State demonstrates will be adequate to attain the national primary ambient air quality standard in such area as expeditiously as practicable but not later than ten years after the date of enactment of this subsection.

"(C) in the case of each nonattainment area with an annual emission reduction requirement established by subparagraph (B), an annual reduction in emissions of hydrocarbons, oxides of nitrogen, or carbon monoxide from each major stationary source in such area from the emissions of such pollutant by such source during 1984, so that by the end of each calendar year the total reduction equals 8 per centum (or the percentage substituted for the area under subparagraph (B)) times the number of years elapsed since January 1, 1988. The requirement of this subparagraph shall not apply until the end of 1990.

"(D) the adoption and enforcement of a fee of not less than $100 per ton of hydrocarbons, oxides or nitrogen, or carbon monoxide for each stationary source in a nonattainment area, commencing not later than January 1, 1993.

"(E) the adoption and enforcement of an excess emissions penalty set and collected in accordance with paragraph (3) for each source that fails to comply with the requirements of subparagraph (C).

"(F) a binding commitment by the State transportation agency and all local public transit and transportation planning agencies to implement section 174(b) and sections 176 (c) and (d).

"(3)(A) An excess emissions penalty shall be the amount per ton of any pollutant emitted by a major stationary source in excess of that allowed by paragraph (2)(C) equal to the cost per ton of pollutant removed that the owner or operator of such source would have expended in order to comply with such paragraph, or the economic value that a delay in compliance would have to such owner or operator (including the capital costs of compliance and debt service over a normal amortization period, operation and maintenance costs foregone as a result of noncompliance, and any other economic value such a delay may have for the owner or operator), whichever is greater. In no event shall such an excess emissions penalty be less than $5,000 per ton.

"(B) The air pollution control agency or other entity collecting the fees and excess emissions penalties required by paragraphs (2) (D) and (E) shall retain such funds, which shall be used for air pollution control programs in areas covered by this part. In the event the Administrator is implementing the provisions of such paragraph in any nonattainment area, the Administrator is authorized to retain any funds collected, and all amounts collected by the Administrator shall be deposited into a special fund of the Treasury entitled 'Air Enforcement and Related Services' which shall thereafter be available for appropriation to carry out activities under this Act.".

(d) Section 171(1) of the Clean Air Act is amended by adding the following: "For nonattainment areas to which section 172(e) applies, compliance with the requirements of section 172(e)(2) shall constitute reasonable further progress. A State or local government with responsibility for implementing an appropriate portion of an implementation plan may report compliance with sections 172(e)(2) (B) and (C) at a greater interval than annually, but no less often than every three years.".

(e) That last sentence of section 173 of the Clean Air Act is amended by inserting after "paragraph (1)(A)" the phrase "or under the following sentence". Section 173 is further amended by adding the following: "In the case of a nonattainment area that qualifies under section 172(e), the amount of emissions from any proposed source shall be offset by reductions in the emissions of such pollutant from other sources in such nonattainment area, and the amount of such offsetting emission reductions shall be at least two times as great as the amount of allowable emissions from such proposed sources.".

TECHNOLOGY REQUIREMENTS AND DEFINITIONS FOR NONATTAINMENT AREAS

SEC. 102. (a) Section 171(3) of the Clean Air Act is amended by—

(1) inserting after subparagraph (A) the following new subparagraph, and redesignating succeeding subparagraphs accordingly:

"(B) the most stringent emission limitation included in a permit issued pursuant to this Act for a major stationary source of the same size range, type, and class (as determined by the State in accordance with any applicable regulations promulgated by the Administrator) before the application for the permit for the proposed source is complete, or".

(2) inserting at the end thereof the following: "At a minimum, the lowest achievable emission rate established for a proposed new or modified source shall require the use of technology or emission reduction methods equivalent to the average of the performance of the highest 10 per centum in terms of emission reduction of all sources in the same class or category. For the purposes of this paragraph, the permitting authority shall be required to review emission limitations for other major stationary sources and to identify the most stringent emission limitation if the sources are located within the State in which the proposed source will be located, the emission limitation is described in a guidance document published and distributed to the permitting authority in accordance with section 108 or 179, or the permitting authority has received actual notice of the emission limitation by a comment submitted to the permitting authority during the consideration of the permit for the proposed source or through any other means.".

(b) Section 171 of the Clean Air Act is amended by adding at the end thereof the following new paragraphs:

"(5) The term 'major stationary source' or 'major emitting facility' includes each discrete operation, unit or other activity that produces or may produce emissions of twenty-five tons or more per year of a pollutant or a precursor of a pollutant for which the area in which such source is or will be located in a nonattainment area. For the purposes of section 172(e)(2)(C), the last sentence of section 173, and section 110(a)(2)(I), a major stationary source does not include a resource recovery facility recovering energy from the mass burning of municipal solid waste or from refuse-derived fuel.

"(6) The term 'reasonably available control technology' as used in section 172(d) means an emission limitation, standard of performance or other emission standard based on the maximum degree of reduction of emissions of the pollutant or precursors of the pollutant for which an area is a nonattainment area, that the permitting authority determines is achievable for the existing source or class of sources in the area. In establishing such emission limitation, standard of performance or emission standard, the permitting authority shall take into account the potential toxic character of such pollutant or precursor and the degree to which the nonattainment area needs further reductions in emissions to attain the national ambient air quality standards. The availability or achievability of a particular control technology shall not be determined solely on the basis of the marginal cost per ton of pollutant removed. The requirement for the adoption of reasonably available control technology shall apply to any major stationary source and to any other significant source or class of sources of emissions. With respect to stationary sources, reasonably available control technology shall be implemented and enforced through a permit system.

"(7) The term 'vehicle emission control inspection and maintenance program' as used in section 172(d) means a program to reduce in-use emissions of hydrocarbons, carbon monoxide, oxides of nitrogen, and diesel particulates from motor vehicles that—

"(A) covers all vehicles regularly operating in the program area;

"(B) includes at a minimum each Metropolitan Statistical Area (as defined by the Director of the Bureau of the Census) with a population of one hundred thousand or more according to the 1985 Census, in the nonattainment area and in each county in any region established under section 178;

"(C) requires annual emission testing and necessary adjustment, repair, or maintenance;

"(D) requires direct inspection of components of vehicle emission control systems (including evidence of misfueling) and, where such components have been rendered inoperative, the repair or replacement of such components;

"(E) is operated on a centralized or, with respect to emission testing, computerized basis; and

"(F) has a repair cost waiver in the case of failure of at least $200, or provides that any repair cost waiver limit shall apply only to costs that are not covered by a warranty under section 207.".

OZONE TRANSPORT REGIONS

SEC. 103. (a) Part D of title I of the Clean Air Act is amended by inserting after section 177 the following new section, and redesignating succeeding sections accordingly:

"OZONE TRANSPORT REGIONS

"SEC. 178. (a)(1) For the purpose of facilitating attainment of the national primary ambient air quality standard for photochemical oxidants (ozone) in nonattainment areas affected by emissions in other areas, there are hereby established the following ozone transport regions:

"(A) the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New

Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and the District of Columbia;

"(B) the States of Illinois, Indiana, Michigan, and Wisconsin; and

"(C) the States of Texas and Louisiana.

"(2) The Administrator is authorized to establish other regions consisting of more than one State, and to add States to any of the regions established by paragraph (1). A commission created by subsection (b) is authorized to delete by agreement of its members any State or one or more counties of any State from a region established by paragraph (1), if such commission determines the control of emissions in such State or counties in accordance with this section will not contribute to the attainment of such primary standard in any nonattainment area.

"(b) Not later than six months after the date of enactment of this section (or not later than three months after the establishment of a region by the Administrator), there shall be established for each region established under subsection (a) a commission made up of an air pollution control official representing each State in the region (appointed by the Governor or as provided under State law), the Administrator (or a designee from the Agency headquarters office), and the Regional Administrator for each Agency region affected by such region (or a designee). Decisions of such commissions shall be by agreement of a majority of the State members and the Administrator.

"(c)(1) Effective on the date two years after the date of enactment of this section, each area of a region established under subsection (a) that is not a nonattainment area shall comply with the requirements of section 172(d)(1), (4) (with respect to each category of source for which reasonably available control technology control technique guidance has been published prior to the enactment of this section), and (5). The requirements made applicable by the previous sentence shall be deemed a requirement of an applicable State implementation plan for each such area of such region.

"(2) The commission established by subsection (b) shall identify additional categories of sources for which reasonably available control technology shall be adopted for nonattainment areas and other areas within such region. The commission shall identify and recommend to the member States for inclusion in State implementation plans under this part and section 110, such other measures as may contribute to the attainment of the national primary ambient air quality standard for photochemical oxidants (ozone) for nonattainment areas in such region. Failure to incorporate into a State implementation plan any requirement identified under this paragraph within one year of such identification shall constitute a notice of plan inadequacy under section 110(a)(2)(H).".

(b) Section 106 of the Clean Air Act is amended by—

(1) inserting after "section 107" the following: "or of implementing section 178";

(2) inserting after "program costs of" the following: "any commission established under section 178 or"; and

(3) inserting in the last sentence thereof after "such agency" in each place it appears the following: "or such commission".

Sec. 104. (a) Section 110(a)(2)(I) of the Clean Air Act is amended to read as follows:

"(I) it provides that in any nonattainment area to which such plan should apply, no major stationary source shall be constructed or modified if the emissions from such source will cause or contribute to concentrations of any air pollutant for which a national ambient air quality standard is exceeded in such area, if—

"(i) the date for attainment of the primary national ambient air quality standard established under section 172(a)(3) is past and such area remains nonattainment (unless otherwise provided under section 173(e), including subsection (3)(1)(C));

"(ii) the State has not submitted a plan that meets the requirements of section 172(b)(11)(B), section 172(d), section 173, and if applicable, section 172(e);

"(iii) in the case of a newly promulgated or revised primary national ambient air quality standard or a notice of plan inadequacy under subparagraph (H), the State has not submitted a plan that meets the requirements of this section and, to the extent applicable, part D; or

"(iv) the State or a local government with responsibility to implement a portion of the plan is not implementing each requirement of a plan adopted or promulgated in accordance with section 172 and each requirement promulgated under section 130.".

(b) Section 176 (a) and (b) of the Clean Air Act is amended to read as follows:

"SEC. 176. (a) The Secretary of Transportation shall not approve any projects or award any grants under title 23, United States Code, other than for safety, mass transit, or transportation improvement projects related to air quality improvement or maintenance, in any nonattainment area for which—

"(1) the date for attainment of the primary national ambient air quality standard established under section 172(a)(3) is past and such area remains nonattainment (unless otherwise provided under section 173(e), including subsection (e)(1)(C));

"(2) the State has not submitted a plan that meets the requirements of section 172(b)(11)(B), section 172(d), section 173, and if applicable, section 172(e); or

"(3) the State or a local government with responsibility to implement a portion of the plan is not implementing each requirement of a plan adopted or promulgated in accordance with section 172 and each requirement promulgated under section 130.

"(b) The introduction of any pollutant into a publicly-owned sewage treatment works with a permit under section 402 of the Clean Water Act (as such terms are defined in such Act), by a source not utilizing such treatment works prior to a violation described in paragraph (1) or (2) of this subsection, is prohibited in any nonattainment area for which—

"(1) the State has not submitted a plan that meets the requirements of section 172(e), if applicable; or

"(2) the State or a local government with responsibility to implement a portion of the plan is not implementing the requirements of the plan in accordance with section 172(e)(2) (B), (C), (D), or (E) or the last sentence of section 173.

The prohibition of this section shall be deemed a requirement of an applicable implementation plan. The Administrator shall proceed in any court of competent jurisdiction to enforce this subsection. The owner or operator of a publicly-owned treatment works may raise as an affirmative defense that the applicable State implementation plan expressly quantifies and provides for the increase in emissions which may reasonably be anticipated to result, directly or indirectly, from the source proposing such introduction and requires that before such introduction is allowed such increase in emissions shall be offset by reductions in emissions from other sources in such nonattainment area, and the amount of such offsetting emission reductions shall be at least four times as great as the expected increase in emissions, and that such provisions are being implemented. For the purpose of the preceeding sentence, an increase in emissions shall include any emissions associated with such source, directly or indirectly, from mobile sources, stationary sources, and areawide and nonmajor stationary source growth (mobile and stationary). The trier of fact shall determine whether such defense has been proven.".

TECHNICAL AND PLANNING ASSISTANCE

SEC. 105. (a) Section 175 of the Clean Air Act is amended by adding the following new subsections:

"(c) The Administrator may make grants under this section to any State for payment of reasonable costs of developing a plan revision under this part or a plan to implement a newly promulgated or revised national ambient air quality standard under section 110.

"(d) The Administrator shall make grants to nonprofit organizations in any nonattainment area to provide technical assistance to such organizations to facilitate the participation of such organizations in the revision of any implementation plan under this part and the selection of control measures.

"(e) There are authorized to be appropriated to carry out this section $75,000,000 to be available until expended.".

OUTER CONTINENTAL SHELF AND VESSEL ACTIVITIES

SEC. 106. (a) Part A of title I of the Clean Air Act is amended by adding at the end thereof the following new section:

"OUTER CONTINENTAL SHELF

"SEC. 129. (a) For purposes of protection of ambient air quality of any State, the Administrator by regulation shall provide that any source of an air pollutant or pollutants resulting from an activity regulated under the authority of the Outer Continental Shelf Lands Act being performed on the Outer Continental Shelf, in the waters above the Outer Continental Shelf, or on the waters above the Outer Continental Shelf, whether such source is a stationary source or a vessel, shall meet all the requirements of this Act that would be applicable to such source if it were carried out in the State or local jurisdiction adjacent to such source. For the purposes of this section and section 110(k), the term 'Outer Continental Shelf' shall have the same meaning as that given at section 201(a) of the Outer Continental Shelf Lands Act.

"(b) For the purposes of subsection (a), the adjacent State or adjacent local jurisdiction is that State or local jurisdiction that is closest to the Outer Continental Shelf source. The Administrator shall decide which State or local jurisdiction shall be considered the adjacent State or local jurisdiction.

"(c) In carrying out the provisions of subsection (a), the Administrator shall assure that such sources do not prevent or interfere with the attainment or maintenance of any ambient air quality standards, including any standards established by any State or local government to the extent that such standards are contained in its State implementation plan.

"(d) In carrying out the responsibilities of subsection (a), the Administrator shall require, to the extent practicable and feasible, comparable regulation of Outer Continental Shelf sources and similar non-Outer Continental Shelf sources.".

(b) Section 204(a)(8) of the Outer Continental Shelf Lands Act is amended by inserting after "of the State" the phrase ", until such time as the Administrator of the Environmental Protection Agency has promulgated regulations under section 129 of the Clean Air Act".

(c) Section 110 of the Clean Air Act is amended by adding the following new subsection:

"(k) For the purposes of this Act, any State or air pollution control agency is authorized, in the adoption, implementation or enforcement of any provision of a State implementation plan, to control the emissions from any vessel while in any port within the jurisdiction of such State or air pollution control agency or, when engaged in an activity regulated under the authority of the Outer Continental Shelf Lands Act, while operating in or on waters above the Outer Continental Shelf or on tidal waters within the boundaries of the State.".

TITLE II—MOBILE SOURCE AND OTHER FEDERAL CONTROLS

VEHICLE EMISSION STANDARDS

SEC. 201. (a) Section 202(b)(1)(A) of the Clean Air Act is amended by adding at the end thereof the following new sentence: "The regulations under subsection (a) applicable to emission of hydrocarbons from light-duty vehicles and engines manufactured during and after model year 1992 shall contain standards which provide that such emissions may not exceed 0.25 gram per vehicle mile.".

(b) Section 202(b)(1)(B) of the Clean Air Act is amended by adding at the end thereof the following new sentence: "The regulations under subsection (a) applicable to emissions of oxides of nitrogen from light-duty vehicles and engines manufactured during and after model year 1990 shall contain standards which provide that such emissions may not exceed 0.4 gram per vehicle mile.".

(c) Section 202(b)(1) of the Clean Air Act is amended by adding the following new paragraph:

"(D) The Administrator shall promulgate regulations under subsection (a) applicable to emissions of particulates from light-duty vehicles and engines manufactured during and after model year 1990, and such regulations shall contain standards which provide that such emissions, may not exceed 0.08 gram per vehicle mile.".

(d) Section 202(a)(3) of the Clean Air Act is amended by inserting after subparagraph (E) the following new subparagraphs and redesignating succeeding subparagraphs accordingly:

"(F) Regulations under paragraph (1) applicable to emissions of oxides of nitrogen frm heavy duty vehicles and engines shall contain standards that provide that such emissions shall not exceed 4.0 grams per brake horsepower-hour for vehicles manufactured during and after model year 1991 and that such emissions shall not exceed 1.7 grams per brake horsepower-hour for vehicles manufactured during and after model year 1995. Regulations applicable to emissions of particulates from heavy-duty diesel vehicles and engines shall require that such emissions may not exceed 0.1 gram per brake horsepower-hour, beginning in model year 1991 with respect to buses, and in model year 1994 with respect to other heavy-duty diesel vehicles and engines.

"(G) Regulations under paragraph (1) applicable to emissions from light-duty trucks and engines manufactured during and after model year 1990 shall contain standards that provide that such emissions may not exceed 0.5 grams per vehicle mile of oxides of nitrogen, 0.5 gram per vehicle mile of hydrocarbons, 0.08 gram per vehicle mile of particulates, and 5.0 grams per vehicle mile of carbon monoxide. For the purposes of this subparagraph, the terms 'light-duty truck' and 'light-duty truck and engine' means any motor vehicle (including the engine thereof) with a gross vehicle weight (as determined under regulations promulgated by the Administrator) of 8,500 pounds or less and a curb weight of 6,000 pounds or less (as determined under regulations promulgated by the Administrator) and which—

"(i) is designed primarily for purposes of transportation of property or is a derivation of such a vehicle, "(ii) is designed primarily for transportation of persons and has a capacity of more than twelve persons, or

"(iii) has special features enabling off-street or off-highway operation and use.

For the purposes of this section, any motor vehicle with a gross vehicle weight of 6,000 pounds or less shall be a light-duty vehicle.".

(e) Section 202(a)(3)(H) of the Clean Air Act (as redesignated by this Act) is amended by adding the following new sentence: "Regulations under this section applicable to exhaust and evaporative emissions from motorcycles and motorcycle engines manufactured during and after model year 1992 shall contain standards that provide that such emissions may not exceed levels equivalent to those applicable to light-duty vehicles, on a gram per vehicle mile basis or a gram per test basis, as appropriate.".

(f) Section 202(a)(6) of the Clean Air Act is amended to read as follows:

"(6) Regulations under this section applicable to light-duty vehicles manufactured during and after model year 1991 shall require the use of onboard hydrocarbon control technology to recover emissions from the fueling of such vehicles. Such onboard hydrocarbon control technology shall be designed to accommodate all available fuels.".

(g) Section 209(b)(1) of the Clean Air Act is amended by striking ", in the aggregate,".

ASSURANCE OF IN-USE COMPLIANCE

SEC. 202. (a)(1) Section 202(d)(1) of the Clean Air Act is amended by striking "five years or of fifty thousand miles" and inserting in lieu thereof "ten years or of one hundred thousand miles".

(2) The amendment made by this subsection shall take effect with respect to light-duty vehicles and engines manufactured during and after model year 1990.

(b) Section 202 of the Clean Air Act is amended by adding the following new subsection:

"(g) Each emission standard under this section shall apply to and be met by each and every vehicle or engine sold, offered for sale, introduced into commerce, or imported, and may not be met or complied with by the average of the performance of various vehicles, engines, engine families, or models manufactured by the same manufacturer.".

(c) Section 206(a) of the Clean Air Act is amended by adding the following new paragraph:

"(4) Not later than one year after the enactment of this paragraph, the Administrator shall promulgate regulations adding an idle test mode to the Federal Test Procedure for light-duty vehicles as in effect on such date of enactment. Such modified test procedure shall be used for the certification of light-duty vehicles and engines manufactured during or after model year 1990.".

(d) Section 206(b)(2)(A) of the Clean Air Act is amended by adding the following new clause:

"(iii) A certificate of conformity shall be suspended or revoked under clause (i) if less than 90 per centum of the new vehicle or engines tested in any sample or sampling period conform with the regulations with respect to which the certificate of conformity was issued.".

(e)(1) Section 207(c)(1) of the Clean Air Act is amended by striking the word "properly" each time it occurs and inserting in lieu thereof "normally".

(2) Section 207(c) of the Clean Air Act is amended by adding the following new paragraphs:

"(4) In making determinations of nonconformity under this subsection, the Administrator shall take into account information collected under any State vehicle emission control inspection and maintenance program. Any State in which such a program is operating may petition the Administrator to make a determination of nonconformity under paragraph (1) on the basis of information collected in such program. The Administrator shall act upon such petition within sixty days of receipt of such petition.

"(5) For the purpose of paragraph (1), the phrase 'normally maintained and used' means the maintenance and use ordinarily to be expected in the hands of the ultimate purchasers, not necessarily in accordance with instructions under paragraph (3), but not including intentional misfueling or intentional violations of section 203(a)(3).".

(f)(1) Section 203(a)(3) of the Clean Air Act is amended to read as follows:

"(3)(A) for any person to remove or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this title prior to its sale and delivery to the ultimate purchaser, or for any person knowingly to remove or render inoperative any such device or element of design after such sale and delivery to the ultimate purchaser; or

"(B) for any person to manufacture or sell, or offer to sell, any part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine, where a principal use of such part or component is to bypass, defeat, or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this title, and where such part or component is being offered for sale for such use or put to such use within the knowledge of such person; or".

(2) Section 205 of the Clean Air Act is amended to read as follows:

"SEC. 205. (a) Any person who violates paragraph (1), (2), or (4) of section 203(a) or any manufacturer or dealer who violates paragraph (3)(A) of section 203(a) shall be subject to a civil penalty of not more than $10,000. Any other person who violates paragraph (3)(A) of section 203(a) or any person who violates paragraph (3)(B) of section 203(a) shall be subject to a civil penalty of not more than $2,500. Any such violation with respect to paragraph (1), (3), or (4) of section 203(a) shall constitute a separate offense with respect to each motor vehicle or motor vehicle engine.

"(b) A civil penalty for a violation of section 203 shall be assessed by the Administrator by an order made on the record after opportunity for a hearing. In connection with any proceeding under this section the presiding officer may issue subpoenas for the attendance and testimony of witnesses and the production of papers, books, and documents.

"(c) In determining the amount of a civil penalty, the Administrator shall take into account the gravity of the violation, the size of the violator's business, the violator's history of compliance, action taken to remedy the violation, and the effect of the penalty on the violator's ability to continue in business.

"(d) If any person fails to pay a civil penalty assessed under this section—

"(1) after the order making the assessment has become a final order and if such person does not file a petition for judicial review of the order in accordance with section 307, or

"(2) after a court in any action brought for judicial review has entered a final judgment in favor of the Administrator or the action has otherwise been terminated if such person has filed a petition for review under section 307,

the Attorney General shall recover the amount assessed (plus interest from the date of the expiration of sixty days from the date of the order, or from the date of such final judgment, as the case may be) in an action brought in any appropriate district court for the United States. In such an action, the validity, amount, and appropriateness of such penalty shall not be subject to review.".

REGULATION OF FUELS

SEC. 203. (a) Section 211 of the Clean Air Act is amended by adding the following new subsections:

"(h) After July 1, 1988, the sale of introduction into commerce of diesel fuel for use in motor vehicles, which fuel has a sulfur content in excess of 0.05 per centum by weight, shall be prohibited.

"(i) Not later than two years after the date of enactment of this subsection, the Administrator shall promulgate regulations under this subsection requiring that the Reid vapor pressure of gasoline sold, offered for sale, or introduced into commerce during warm weather months (as defined by the Administrator), shall not exceed 9.0 pounds per square inch. After April 1, 1990, no manufacturer or importer of gasoline may sell, offer for sale, or introduce into commerce any fuel which does not comply with such regulations.".

(b)(1) Section 211(d) of the Clean Air Act is amended to read as follows:

"(d)(1) Any person who violates subsection (a) or (f) or the regulations prescribed under subsection (c), (h) or (i) or who fails to furnish any information required by the Administrator under subsection (b) shall be subject to a civil penalty of not more than $10,000 for each and every day of such violation. Such civil penalty shall be assessed by the Administrator by an order made on the record after opportunity for a hearing. In connection with any proceeding under this section the presiding officer may issue subpoenas for the attendance and testimony of witnesses and the production of papers, books, and documents.

"(2) In determining the amount of a civil penalty, the Administrator shall take into account the gravity of the violation, the size of the violator's business, the violator's history of compliance, action taken to remedy the violation, and the effect of the penalty on the violator's ability to continue in business.

"(3) If a person fails to pay a civil penalty assessed under this subsection—

"(A) after the order making the assessment has become a final order and if such person does not file a petition for judicial review of the order in accordance with section 307, or

"(B) after a court in any action brought for judicial review has entered a final judgment in favor of the Administrator or the action has otherwise been terminated if such person has filed a petition for review under section 307,

the Attorney General shall recover the amount assessed (plus interest from the date of the expiration of sixty days from the date of the order, or from the date of such final judgment, as the case may be) in an action brought in any appropriate district court for the United States. In such an action, the validity, amount, and appropriateness of such penalty shall not be subject to review.".

(2) Section 211(c) of the Clean Air Act is amended by adding a new paragraph as follows:

"(5) Regulations under this subsection shall prohibit any person from introducing, or causing or allowing the introduction, of a regulated fuel or fuel additive into a motor vehicle not designed for such fuel or fuel additive.".

FEDERAL HYDROCARBON EMISSION CONTROLS

SEC. 204. Part A of title I of the Clean Air Act is amended by adding the following new section:

"HYDROCARBON EMISSION CONTROLS

"SEC. 130. (a) Not later than two years after the enactment of this section, the Administrator shall promulgate regulations establishing emission limitations, standards of performance, or standards for product composition or application for hydrocarbon emissions associated with the following categories of sources—

"(1) commercial solvents;

"(2) consumer solvents;

"(3) architectual coatings;

"(4) pesticide application;

"(5) traffic marking coatings; and

"(6) metal parts coatings in military specification applications and aerospace industry applications.

"(b) With respect to existing sources or activities not subject to section 111 or section 173, the regulations under this section shall require the degree of emission reduction or control, at a minimum, achievable through the adoption of reasonably available control technology, as defined in section 171(6). In developing regulations under subsection (a)(6) of this section, the Administrator shall consult with the affected industry, including the industries procuring such parts, and with representatives of the Department of Defense and the National Aeronautics and Space Administration involved in the establishment of specifications for such parts or coatings.

"(c) For the purposes of this Act, any requirement of a regulation promulgated under this section shall be deemed a requirement of an applicable implementation plan.".

FEDERAL ENFORCEMENT

SEC. 205. (a) Section 113(c)(1) of the Clean Air Act is amended by striking "shall be punished" and all that follows through the end of the paragraph and inserting in lieu thereof "shall be punished by a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than three years, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than $100,000 per day of violation, or by imprisonment of not more than 6 years, or by both.".

(b) Section 113(c)(2) of the Clean Air Act is amended by striking "$10,000" and inserting in lieu thereof "$25,000"; and by striking "six months" and inserting in lieu thereof "two years".

TITLE III—AMBIENT AIR QUALITY STANDARDS

REVISED CRITERIA DOCUMENTS

SEC. 301. Section 109(d)(1) of the Clean Air Act is amended by adding the following: "Not later than one year after the enactment of this sentence, the Administrator shall issue such revisions to criteria as may be necessary to promulgate ambient air quality standards as required by subsections (e) through (j).".

REQUIRED AIR QUALITY STANDARDS

SEC. 302. Section 109 of the Clean Air Act is amended by adding the following new subsections:

"(e) Not later than two years after the enactment of this subsection, the Administrator shall promulgate an additional national primary ambient air quality standard for photochemical oxidants (ozone) that is consistent with subsection (b), that is based on concentrations averaged over a period of not less than eight hours, and, taking into account subchronic human health effects, that is more protective of public health and more stringent in effect than the national primary ambient air quality standard for ozone in effect as of June 1, 1987.

"(f) Not later than one year after the enactment of this subsection, the Administrator shall promulgate an additional national primary ambient air quality standard for nitrogen dioxide concentrations over a period of not more than one hour that is consistent with subsection (b).

"(g) Not later than two years after the enactment of this subsection, the Administrator shall promulgate an additional national primary ambient air quality standard for carbon monoxide that is consistent with subsection (b) and that is applicable to high altitude areas.

"(h) Not later than one year after the enactment of this subsection, the Administrator shall promulgate an additional national primary ambient air quality standard for sulfur dioxide concentrations over a period of not more than one hour that is consistent with subsection (b). The Administrator may postpone the promulgation of a standard in accordance with this subsection, if the Administrator determines that the implementation of the provisions of part E of this title will provide at least an equal degree of emission reduction and of protection of the public health, at as early a date, as the implementation of such standard.

"(i) Not later than one year after the enactment of this subsection, the Administrator shall promulgate a national secondary ambient air quality standard for fine particles with an aerodynamic diameter smaller than or equal to 2.5 micrometers that is consistent with subsection (b) and that is adequate to protect visibility.

"(j) Not later than three years after the enactment of this subsection, the Administrator shall promulgate a national primary ambient air quality standard for acid aerosols that is consistent with subsection (b). Such standard shall be in addition to any national ambient air quality standards for particulate matter.".

CLEAN AIR ACT AMENDMENTS OF 1987

Acid Rain

WEDNESDAY, JUNE 17, 1987

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION,
Washington, DC.

The subcommittee met, pursuant to notice, at 2:40 p.m., in room 406, Dirksen Senate Office Building, Hon. George J. Mitchell (chairman of the subcommittee) presiding.

Present: Senators Mitchell, Stafford, Chafee, Durenberger, Symms, Burdick, Baucus, Breaux, Graham, and Pressler.

OPENING STATEMENT OF HON. GEORGE J. MITCHELL, U.S. SENATOR FROM THE STATE OF MAINE

Senator MITCHELL. The Subcommittee on Environmental Protection will now come to order for a hearing which will focus on acid rain legislation which is pending before the subcommittee.

Acid rain is a serious national problem that must be addressed before the American environment and the health of many Americans are further impaired.

The Administration continues to argue that more research is needed. Yet, the national acid precipitation assessment program, the interagency Federal research organization has failed to produce results. They are behind schedule and are not even investigating the compelling health consequences of continued exposure to acid rain.

It was reported last week that the program has abandoned any attempt to calculate the economic costs of inaction on acid rain. Without such information, we could be left to balance the costs of an acid rain control program against the unidentified benefits, hardly a complete or fair analysis.

It seems that the Administration is more interested in using that program primarily to support its view that acid rain controls are not needed, this despite the Administration's twice-stated intention to comply with the agreement of the U.S.-Canada special envoy's report on acid rain. That report concluded that acid rain is a serious problem and that near-term reductions in emissions are needed. I agree with those conclusions. I believe we must put in place an acid rain control bill to prevent continuing adverse effects.

I look forward to hearing the witnesses today discuss the best means of controlling acid rain as we move forward in the legislative process on this matter.

I am pleased that several members of the committee are here today. I would ask, beginning with the distinguished chairman, if there are any opening statements. Mr. Chairman?

Senator BURDICK. No statement, Mr. Chairman.

Senator MITCHELL. Senator Stafford?

Senator STAFFORD. Thank you, Mr. Chairman. I have no opening statement. I very much hope that before the 100th Congress has ended its work that we will have successfully enacted legislation which will curtail the substances causing acid rain and vastly reduce that problem for the eastern half of the United States and the eastern half of Canada. So I am prepared to work as hard and as long as necessary to come up with meaningful acid rain control legislation, and I look forward to cooperating with you and Senator Chafee and others on this committee in striving to reach that goal.

Senator MITCHELL. Thank you, Mr. Chairman.

Senator Baucus?

OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Senator BAUCUS. Thank you, Mr. Chairman.

I think that as we proceed in this hearing it is important also to remember that this is a nationwide problem. Acid rain is not only a problem that affects New England States and half the country of Canada—that is, the lakes and streams that are adversely affected by acid rain—but also the entire country.

We in the western United States, in the mountains of Montana, for example, we have found pH levels of four in the snow-covered mountains in southwestern Montana, which are the same levels of acidity found in the Adirondacks. It is a national problem. It is a western problem as well as a northeastern problem.

Second, we in the west are trying to contribute to the solution. A quarter of the country's coal reserves are low-sulfur coal in the west, which I think has a bearing on this.

Beyond that, the standards of Montana for coal-fired generators are very, very stringent. The levels are 0.08 pounds per million Btu—much more stringent than are the standards set in any of the bills before us, much more stringent, 10 times more stringent than the most stringent bill before us now.

So the point is, very simply, that the State has coal, and the State has very stringent standards, showing that there are ways for companies, utilities, to comply with very tight restrictions and still proceed to operate.

I hope that as we hold these hearings, we will keep in mind that this is a national problem and it is a western problem as well as an eastern United States problem.

Senator STAFFORD. Would the Senator yield for just a brief comment? It is very refreshing, I would say, to have a Senator from the western part of the country recognize the same problem, and we agree it does exist throughout the Nation. It is heartening to have others in other parts of the country realize that it is there.

I know that is nothing new for the Senator from Montana. He has been a leader here in this matter. I also salute Montana for the cleanliness of the utilities in your State.

Senator **Baucus**. Thank you.

Senator **Mitchell**. Senator Chafee?

OPENING STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator **Chafee**. Thank you, Mr. Chairman. I just want to congratulate you for pressing on with these hearings. I know you have a full schedule, and yet we are going full-speed ahead.

I think this is about the seventh year that we have dealt with acid rain, and we haven't made much progress. So I hope that this year we can really come forward with legislation, get it on the floor, get it passed, and finally deal with this problem which is such a menace not only to the eastern part of the United States but damaging our relationship with Canada, as has been pointed out time and time again, but as Senator Baucus so aptly said, it is a national problem. So I congratulate you.

Senator **Mitchell**. Thank you.

Senator Durenberger?

OPENING STATEMENT OF HON. DAVE DURENBERGER, U.S. SENATOR FROM THE STATE OF MINNESOTA

Senator **Durenberger**. Mr. Chairman, it may be the 7th year for this committee, but it is about the 19th year that my State has been involved in one way or another in acid rain. And our State isn't alone. Obviously, I would echo what everybody else in this committee has learned over those 7 years, and that is that it is time to take some action as a Nation on this problem.

I am glad that Max mentioned his commitment because it reminded me that it was way back in either 1981 or 1982 that we went together to Montana and held a hearing on clean air in general and acid rain also in the specific, which should serve as a reminder that the effects may be regional, but it is not a regional issue, it is a national issue, a national problem and one of these days needs to be dealt with through national legislation.

Senator **Mitchell**. Thank you, Senator Durenberger.

Senator Breaux?

Senator **Breaux**. No, thank you, Mr. Chairman.

Senator **Mitchell**. Senator Symms?

OPENING STATEMENT OF HON. STEVE SYMMS, U.S. SENATOR FROM THE STATE OF IDAHO

Senator **Symms**. Thank you very much, Mr. Chairman.

As one member of the committee, I don't believe that the 7 years that we have worked on it have really been wasted, and I compliment many of my colleagues on the committee for their long and lasting interest in it.

But I think that the point that Senator Baucus made shows that there is a lot yet to see and to learn, and I am not sure that we were wrong by not acting prematurely. It may be that now is closer to the time for some appropriate action, but I think the fact that we have the problem on the west coast as well as on the northeastern part of the United States demonstrates that it may be a problem that is broader and bigger in its implications than we had originally realized. So I compliment all my colleagues for their interest in this and look forward to having our good colleague from New Hampshire testify.

Senator MITCHELL. Senator Pressler?

OPENING STATEMENT OF HON. LARRY PRESSLER, U.S. SENATOR FROM THE STATE OF SOUTH DAKOTA

Senator PRESSLER. I would like to say that the acid rain bills before this committee take various approaches to dealing with the problem. From my State of South Dakota's point of view, we do not have a problem presently, but we may have at some future point. We should not preclude the use of new technologies to reduce utility emissions. Realistic, achievable goals and a flexible approach will allow utilities to meet the standards in the most cost-effective manner. This approach will provide the environmental benefits while minimizing the impact of electric consumers and the economy.

If acid rain controls are imposed, we must be careful not to place U.S. industries at a competitive disadvantage. That is something that I think is very important. It could occur by dramatically increasing utility costs.

Mr. Chairman, I look forward to hearing the witnesses on this important issue.

Senator MITCHELL. Thank you, Senator.

Senator Graham?

OPENING STATEMENT OF HON. BOB GRAHAM, U.S. SENATOR FROM THE STATE OF FLORIDA

Senator GRAHAM. Thank you, Mr. Chairman.

Briefly, I believe that we approach this issue from an advanced position, in part due to the work of members of this committee and in part due to the excellent report issued by Mr. Drew Lewis and Mr. Bill Davies, which indicated the international U.S.-Canadian dimension to this important issue.

Also, as Senator Baucus' remarks underscored, States have been taking aggressive action in terms of air pollution standards, and I believe we have the opportunity to learn the realities of economics and the environment from those laboratories.

Finally, the extension of this issue from being thought of exclusively as an environmental issue to also being an important public health question, and I look forward to the testimony that we are going to be receiving today on that subject from a State with a large population of older Americans, a group especially at risk due to various forms of air pollution. This is truly a national issue, and it is one on which I hope the Congress will now express the Nation's will.

Senator MITCHELL. Thank you very much, Senator.

We are pleased that our first witness is a former member of this committee, the distinguished Senator from New Hampshire.

Senator Humphrey, welcome. We look forward to hearing from you.

STATEMENT OF HON. GORDON J. HUMPHREY, U.S. SENATOR FROM THE STATE OF NEW HAMPSHIRE

Senator HUMPHREY. Thank you, Mr. Chairman. Did you mean to imply that you are pleased that I am a former member?

Senator MITCHELL. No. No, I didn't mean to imply that at all. But you are welcome in any event, and we look forward to hearing from you.

Senator HUMPHREY. Thank you very much.

Senator MITCHELL. I couldn't help sympathizing with you, sitting down there. Now you know how the witnesses used to feel when you were sitting up here making these opening statements along with us.

Senator HUMPHREY. Yes. I am glad there aren't any Senators from Appalachia on the committee.

Mr. Chairman, as Senator Chafee has noted, the Congress has been grappling with this issue for many, many years, and truly it has become an embarrassment for me and, I am sure, for most members of this subcommittee to have to report after all of this time that we haven't yet done anything about acid rain. There is so much talk and so little action that it is truly an embarrassment. I imagine the chairman feels as I do, and I urge him and the members to make a maximum effort to report out a bill and to get that bill brought up for consideration on the floor.

I am glad to have the active support of New Hampshire's Governor John Sununu, who testified before this subcommittee in favor of legislation which Senator Proxmire, Senator Simpson, and I have introduced, S. 316. This is virtually the same bill, improved somewhat over what we had introduced in the last Congress, based on recommendations originating in the National Governors' Association. I think it is important if we are to produce a bill, that we have the support of as many Governors as possible.

I will just skip through here and hit the highlights, if I may.

I know that members share my frustration, most of them, about the gridlock on the subject of acid rain. Obviously, a variety of disparate interests must be addressed in seeking acid rain control legislation which will effect significant reductions while minimizing costs. Is consensus for an approach possible? I think so, and I think it is imperative, in fact. All of the legislation before the committee contains elements necessary for effective legislation. A combination of provisions, a distillation of these bills could lead us to our common goal.

I would like specifically to address provisions contained in the chairman's bill, S. 321, and in the bill which I and my colleagues have introduced, S. 316. Flexibility, free choice of reduction strategy, and use of conservation should be included in any acid rain legislation. These concepts enable implementation of a least-cost approach to reducing acid rain precursors. Given the obstacles which face us in enacting a bill, cost is an issue which we simply cannot afford to ignore.

May I say, respectfully, we should avoid legislation which imposes a plant-by-plant emission standard. Estimates have shown that such standards can result in a dramatic increase in cost without an equally dramatic reduction in overall emissions. Rather, we should seek a flexible reduction strategy based on annual Statewide averaging, such as that included in S. 316.

By allowing States to meet a Statewide reduction goal rather than a stringent plant-by-plant standard, we can achieve reductions of ten to twelve million tons of sulfur dioxide at a fraction of the cost achieved by other methods.

Second, acid rain legislation must recognize the need not to prevent energy development and economic growth. S. 321 could stand some modifications in that respect. S. 321 could be modified to ensure that its provisions governing future growth are designed to allow construction of clean new plants while prohibiting increases in emissions from dirty old plants.

Third, in order to maximize the benefits of a flexible approach, S. 321 should be revised to include inter- as well as intra-State trading. Many major utility pools, as you know, extend into several States. ICF, a consulting firm retained by EPA, estimates that by including inter-State trading, the cost of overall emissions reductions would be reduced by ten to fifteen percent.

Fourth, standards for reduction of NO_X emissions from stationary sources could be modified to produce comparative reductions at highly reduced costs.

Fifth, S. 316 requires a two-phase approach leading to a cumulative reduction of twenty-five million tons of SO_2 within five years. There is no sense wasting time when we have the ability to provide annual reductions of five to six million tons in the meantime. A phased approach results in immediate reductions through least-cost methods while allowing ample time later on for larger reductions through implementation of developing technologies.

Finally, S. 316 gives complete credit for use of conservation to achieve overall emissions goals. This will simultaneously decrease emission costs and dependence on imported sources.

Thank you.

Senator **Mitchell**. Thank you very much, Senator Humphrey, not only for your statement but your continuing interest and effort in this area.

Does any member of the committee have any questions for Senator Humphrey?

Senator **Chafee**. Mr. Chairman, I just want to congratulate Senator Humphrey for his statement and his long-continued interest in this effort. We are glad that he has kept up his zeal for this goal.

Senator **Humphrey**. Thank you very much, Senator Chafee.

Senator **Mitchell**. Thank you, Senator.

Senator **Symms**. Mr. Chairman, I would just like to join Senator Chafee in complimenting Senator Humphrey.

I just would say, referring to his mentioning at the outset that he was glad there were no Senators from Appalachia on the committee, I think a reasonable approach to this may avoid making a bigger area of Appalachia in the United States. I think that is why we all really need to work on this. It is a problem, but I think it is one of those problems that, as Senator Pressler said, we want to be careful and not do things that make us less competitive.

I appreciate your approach to it.

Senator **Humphrey**. Thank you.

Senator **Mitchell**. Thank you, Senator Humphrey.

Before we get to our first panel, I want to again mention that although Governor Sununu's testimony related to acid rain, he was unable to appear at today's hearing. In order to accommodate his schedule, the Governor testified at yesterday's hearing. At that time, I announced that it would be more appropriate for his testimony to appear in the record of today's hearing. Therefore, without objection, Governor Sununu's testimony will be made a part of the record of today's hearing at this point.

[The testimony referred to follows:]

Senator **Mitchell**. The next witness is Governor John Sununu of New Hampshire.

Good morning, Governor, and welcome.

Governor, we look forward to hearing from you as always.

STATEMENT OF HON. JOHN H. SUNUNU, GOVERNOR, STATE OF NEW HAMPSHIRE

Governor **Sununu**. Thank you very much, Mr. Chairman, and members of the committee.

I will summarize the testimony we have provided, and I do want to thank you again for the flexibility in time that you have provided me that has made it convenient for me to address this acid rain issue, which I know all of you have been working very hard on.

I am here representing the Alliance on Acid Rain Control. It is a group of individuals that are very much concerned about this issue, and have come together to try and help develop legislation that has the capacity of meeting the balance of concerns so that we can have a beneficial impact on the problem of acid rain across the country.

You, gentlemen, deserve a lot of credit for the hard work that you have put in in trying to craft legislation that not only is effective in terms of dealing with acid rain, but has the capacity of meeting the political requirements and, therefore, achieving passage through the Congress, through the Senate and the House.

I do realize, however, that as this art of crafting legislation has gone on, there appears to have been some differences of opinion, and some polarization even amongst all of us who are supportive of legislation that will aggressively deal with acid rain.

I am here this morning to suggest that we may deal with some of those differences by taking aspects of some of the major legislation that is now before you, and blending them or melding them in such a way to preserve the important features of a couple of these bills, and provide a package that will both effectively address the needs of reducing sulfur oxide and nitrogen oxide emissions, which lead to acid rain deposition, and the needs of recognizing the obligation to deal with some of the potential economic dislocations that will occur as a result of such legislation.

Senator Mitchell, your bill, Senate Bill 321, is an excellent vehicle. What I am sugesting today is that we look at some of the provisions of Senate Bill 316, which is the Humphrey-Proxmire-Simpson Bill, and ask that you consider melding some of the principal provisions there in with yours in a way that is compatible and allows for some of flexibility that I think will allow us to meet the concerns that have been raised by some of the opposition to this kind of legislation.

I do think that there are tenets of Senate Bill 316 which, when melded into yours, will achieve the kind of results we are all committed to, while still retaining some of the cost effective aspects that I hope will ease and accelerate passage, so that we can get legislation on the books as quickly as possible.

I believe that the secret is to take the provisions on the size of the emission reductions, which is slightly less than the existing Senate Bill 321, ten million tons instead of twelve million tons.

There is some strong evidence that the difference of moving ten million to twelve million, will double or more than double total costs. Secondly, it is desirable to add some flexibility of approach, which allows us to concentrate on the plants that are major emitters, rather than merely looking at plant by plant limitations.

Thirdly, the phasing of reductions allows us in a very constructive way, to take a look at the results that have been achieved, and to assess, in that phasing, and allow for a redirection and a refocusing of resources on those areas that have proved to be the most effective.

I think that the flexibility is a very important part. Rahter than mandating scrubbing, it allows for utiliztion of strategies on a state by state basis, and if fact, in plants within states, to maximize the total reduction achievable at the least possible cost. This is a provision which would allow the state strategy to target reductions, rather than merely look at plant by plant specicications.

The phasing of the reductions makes sure that the lower cost options are pursued first. I think, as with anything that is important in this country, that a little bit of reasonable cost success will help coalesce support for the much more difficult tasks that will come in the second phase of emission reductions.

Let me address some of the specific modifications that I would ask be considered to be melded into the basic bill, senator Mitchell's S. 321.

First of all a deletion of the requirement in Section 183 that once a power plant reaches 30 years of age it must meet a plant specific rate of 0.9 pounds of emissions of sulfer oxides per mission Btu.

The establishment of a criterion on the basis of age, and bringing it in at a specific point in time in terms of the life of the plant, I think, inhibits the utilization of reduction technologies in the larger emitting plants. I think that with flexibility, we actusally might see more significant cost effectiveness than has been proposed.

Secondly, the provisions of section 183 which create an absolute ceiling on SO_2, with the ceiling shrinking as old plants retire, is a little bit difficult particularly because, I believe, it would stifle economic growth. I think that if we simply limit the cap to old and dirty plants, it will prevent any serious emission increases, while preserving the opportunity for needed economic growth.

I think it is pretty clear that the provisions of the Clean Air Act that are on the books now, that apply to new sources, are effective. I would, however, like to address the modification of the NO_x emission reduction requirements of section 182 to ensure that we get the largest reduction we can from the plant through cost effective techniques. I think that provision has to be restructed to provide a three million ton NO_x reduction in the rarget emission rate for each major category of power plant. I think this will ensure that particular high NO_x emitting boilers that use cyslones are not forced, by virtue of this provision, to go into very costly, but relatively unproven technologies in the early stages.

The fourth change that I would suggest includes explicit phases in the legislation, with a five or six million ton target in the first phase, and a five or six mission ton target in the second phase. I think that this allows us to get early benefits that are measurable, that are determinable, and allows, if necessary and appropriate, a redirection of activity in the second phase.

The fifth provision, I think, is a very important one, which will allow inter-utility or intra-utility system trading across state lines. Again, since our goal is to get an overall reduction level, if we can provide a mechanism where the utilities, in terms of cost effectiveness, can do trading across those state lines to achieve that, I think it would be a significant benefit.

One point that I would like to emphasize is that the 30-year requirement on the 0.9 pounds of emissions per million Btus really is a problem. To put provisions there merely on the basis of age, I think, will limit the utilization of some of our Eastern coal, which is relatively high in sulfur, but could be utilized in some areas. There are some advantages, I believe, in a bill that does not seem to be an economic disincentive to West Virginia coal, for example.

I won't go back and repeat a lot of the provisions that we have talked about. There are, I think, significant changes, and yet I think they are perfectly compatible and complimentary to the basic structure of the bill.

I would like to make one last point.

In addition to this legislation, there are a number of discussions taking place between myself, Governor Arch Moore, and other Governors of the Midwest, in which we are urging utilization of a transmission system to bring electricity generated from our coal-rich regions into New England.

I am convinced that the analysis we have seen shows that we can provide funds by this purchase that not only will bring low cost electricity into New England, but provide a differential for cleaning up and scrubbing not only those plants that are sending the power to New England, and an added differential which will allow scrubbers to be put on some of the existing plants in the Midwest.

I think that that kind of a balance, in perspective, and the sharing, if you will, of the resources of a region of the nation that has a need for electricity with a region of the nation that has the resource to produce that electricity, with a recognition of the economic dislocation that not using those resources would produce, it an important part of an overall policy. Not necessarily part of the legislation, but part of an overall policy that will go a long way to producing the kind of cooperation in the legislative structure that will allow for passage of such legislation.

Gentlemen, I thank you for the chance of testifying here today. I will be happy to answer any questions you have. Again, I congratulate you for the efforts that you have put forth in dealing with a very difficult, but very important aspect of our environmental and our energy needs.

Senator **MITCHELL**. Thank you very much, Governor, for your always informative comments.

Senator Baucus, any questions?

Senator **BAUCUS**. I want to thank you also, Governor. We are happy that you are here, and adding a little different perspective of the Northeastern delegations. We want to thank you very much for your contribution.

Governor **SUNUNU**. It is my pleasure to be here.

Senator **MITCHELL**. Senator Chafee.

Senator **CHAFEE**. Thank you, Mr. Chairman.

Governor, you were talking about the generation of the electricity at the mine head, is that what you were suggesting, in West Virginia?

Governor **SUNUNU**. Right.

Senator **CHAFEE**. Aren't the New England States already involved in a rather massive project, cooperating with Quebec, in bringing down some of that power from James Bay?

Governor **SUNUNU**. Yes. I emphasize that it is not an either/or situation, with all due respect to some of the the folks who have been looking at what is going on in New England. We are out of electric capacity to meet with our growth.

Frankly, we are consuming more than we have in internal capacity to generate right now. We are trying to bring Canadian hydro-power down. In fact, when I was chairman of the New England Association, we worked out an agreement on what we now call Canadian Hydro-Power Phase II. That will bring a total of 2,000 megawatts to about 17,000 or 18,000 megawatts we use.

Let's say that we brought in another 2,000 and brought it to 4,000 out of 20,000, it is 20 percent. I don't know what the right number is in terms of a limit on imports from even a friendly foreign nation. I am not sure whether it should be 15 percent.

I am not sure whether it should be 20 percent. But at some point in there, I think, in terms of both economic security, in terms of a trade balance, and in terms of all the issues associated with that, including the concerns raised after the last energy crisis we had, where even the friendliest of friends took advantage of price differentials to their benefit, at some point, I think a line has be drawn.

New England needs even more than that. The fact is that our best sources, outside of the region, for an increment above what we can get from Canada, will be the Midwest.

Senator **CHAFEE**. If we did that, wouldn't we get all the transport problems? Is it your theory that if we made that arrangement, then the added income to the plants would provide for the scrubbers? Was that your suggestion?

Governor **SUNUNU**. That is right. We have a study that was done by a couple of folks, including ICF and others, that analyzed that we can purchase power at about 4.6 cents a kilowatt hour, which is significantly lower than the New England average cost now, and have within that sufficient funds to provide for clean burning of the coal. If we want, we can even add an extra differential that for every 1,000 megawatts of capacity we have funded under this, we could put on another differential that would also provide for scrubbing of another 1,000 megawatts.

The fact is that we would have an economic benefit and be providing some of the funds to help the utilities and the consumers in dealing with the clean up costs, so that we get a net reduction of emissions, and have an environmental benefit as well as an energy benefit to New England.

Senator **CHAFEE**. Thank you. It is certainly a thoughtful statement.

Senator **MITCHELL**. Senator Stafford.

Senator **STAFFORD**. Thank you, Mr. Chairman.

Let me join in welcoming the Governor of my next-door State to these hearings.

Governor Sununu, I think you are quite right to feel some sense of caution about how high a percentage of power we might bring in from Canada, no matter how friendly the relations between the two countries are.

In our State of Vermont, we have watched the State of New York gradually want to use the power it generates itself, and rapidly cut down on the power that we are importing from the New York Power Authority at the present time. This could happen in Quebec as that province grows in industry and in people.

I am glad that you sounded a little sense of caution there. I know that most of the power coming in will come through the State of Vermont before it is distributed in New England.

There is an increasing body of evidence, Governor, that ozone may play a substantial role in the decline of forests, including the red spruce in New England, as well as sugar maples.

In addition, up to, as you know, 70 urban areas in the U.S., with a population of perhaps 100 million people may fail to meet the Federal deadline for healthy air this year. The only way to reduce ozone levels further is through additional controls on oxides of nitrogen, and the storage of hydrocarbons. Do you support such additional requirements?

Governor SUNUNU. I do, Senator, but I urge you, as you examine that legislation, to understand what might occur if there ever was a transboundary, State to State problem that was tough to handle. The ozone problem, in my opinion, is as tough or tougher than the acid rain issue, because the impact comes from a combination of sources, the ozone and the hydrocarbons. In some cases they may be coming from two different regions, and meeting at a certain point and creating a difficulty.

With all due respect to my sister New England States, most of our ozone problem in southern New Hampshire seems to be drifting from the south. As we have to deal with that, we have to recognize that the legislative requirements now on the books that would impact our sister States would have an impact economically, and would impact us directly as severely economically.

I agree with you, we need controls, but if we think that we have had a difficulty in coming to a meeting of the minds on the acid rain issue, we are going to have a tough time in trying to deal with the ozone issue.

Senator STAFFORD. Thank you, Governor.

Thank you, Mr. Chairman.

Senator MITCHELL. Thank you, Senator Stafford.

We are pleased to be joined by Senator Simpson.

Senator, do you have any questions for Governor Sununu?

Senator SIMPSON. Senator, I thank you very much. I admire what you are doing here, and I thank you for that. It matches your usual thoughfulness. With all the things that you have in the air as it is, I certainly commend you for plugging away at this, while you are working on the Iran/Contra issue, and many other things.

I thank you for having the Governor here, another person I have great respect for. I apologize for being tardy.

In your testimony, Governor, you suggest that the 30-year 0.9 pound SO_2 provision in Senator Mitchell's bill raises the cost of emission controls without achieving really significant further environmental benefits.

Isn't this provision needed to close what is perceived to be a loophole in the 1977 Clean Air Act Amendments, which seemingly, at least, allowed utilities to postpone construction of new plants with scrubbers by actually only extending the life of dirty plants. What is your view of that provision?

Governor SUNUNU. Senator, as I look at the electric generation problem across this country, it is clear to me, and I think, to most folks who will take time to look at the numbers, that utilities are not building plants and trying to extend the life of old plants, not because of environmental regulations, but because nobody wants to play "You Bet Your Company" in trying to build a new plant in the regulatory morass that now exists across this nation as far as energy facilities go.

If we are to deal with our long-term energy needs in this country, it is not environmental regulation that is inhibiting construction, it is regulation at a point which is creating a financial hardship by virtue of the length of time it takes to build anything today, whether it is coal-fired, whether it is a nuclear plant, or whatever.

A streamlining of the regulatory structure will go so much further in dealing with the tendency of plants to have their life extended, rather than building new plants under the provisions of the Clear Air Act, than any concern associated with the environmental regulations you are putting down.

Senator SIMPSON. Senator Mitchell has legislation before the committee as does Senator Stafford. I have joined with Senator Proxmire in what is known as the Proxmire-Simpson proposal on this issue. I have been here on the committee long enough to see how we deal with acid rain. We pass something terribly tough, strong and heavy, and nothing ever happens.

I hope that we can break through this gridlock and get something reasonable, maybe melding some of these together. I am certainly willing to work with Senator Mitchell toward that, I can promise you that, to see if we can't get something that will pass the U.S. Senate and the U.S. Congress.

Let me ask you a question. I would be interested to know how you would evaluate that Proxmire-Simpson Bill by comparing it with Congressman Henry Waxman's bill that the Clean Air Coalition has supported. Where will that take us, will you give us your evaluation of that?

Governor SUNUNU. I think the emission requirements under the Proxmire-Simpson Bill actually exceed the National Academy of Sciences' recommendations and, in fact, provide more of a reduction than last year's Waxman Bill. I think that it does it in a much more cost effective way.

I do want to endorse your comments about melding. The message that I was trying to convey is that I would like to see a Mitchell Bill become a Mitchell-Proxmire-Simpson-Humphrey Bill, with melded provisions of both of those which I think are complementary and constructive, and I think would go a long way to easing some of the difficult legislative compromises that you have to make as you seek colleague support for this kind of legislation.

Senator SIMPSON. Mr. Chairman, I thank you. I hope that we can get to a bill that has the flexibility we need. I thank Governor Sununu, he is a splendid witness.

Senator MITCHELL. Thank you, Senator Simpson. I look forward to working with you. I would like to make just a couple of comments, Governor, and then ask a couple of questions.

The first is on the requirement in section 183 of my bill that a powerplant, once it reaches 30 years of age, must meet a plant specific emissions rate to which both the Governor and Senator Simpson referred. You correctly state that it would not achieve any additional emission reduction but, of course, that is not the intention of the provision.

The provision is intended to restrict subsequent growth in emissions so that we don't want to go through this exercise, the very difficult and expensive process of reducing emissions, and then go through a period in which they rise again. So we welcome any suggestions you have for accomplishing that objective in a less expensive way.

In other words, the criticism is appropriate, but it does not go to what the provision is intended to accomplish.

Governor SUNUNU. There are a couple of provisions that might address that. Number one is to make clear that the utilities, once they have in place, on a given date, a plant with certain emissions, and probably a retrospective date would be an appropriate one, that the emissions from that plant cannot grow from that level. I don't have any difficulty in that being perceived as a fair provision.

Secondly, the reason I am concerned about that is that if you have a plant with two or three or four pounds of emission per million Btus, you can get a significant reduction by driving them down. But to get the same reduction, you have to go after four plants at 0.9 even if you drive them down to zero. The fact is that you have to invest four times as much because it is almost the equivalent investment in those four plants as you did in cleaning up the one major one.

The fact is that we want to encourage folks to do this early, aggressively and quickly, and giving them the flexibility to make some tradeoffs within the State, and from State to State, without having to fight the plant specific provision, I think, gives the flexibility that gets maximum results.

One of the reasons that we phrase this, and suggest a review after a period of time, is so, if we find out that we haven't gotten that kind of effect out of those kinds of provisions, then I suggest at that point it would be easier to tighten up, if you will, and make plant specific changes.

I do think, on the basis of having talked to people involved in that industry, that we can get a significant response in a short period of time, in a cost effective way, by giving some of the flexibilities that we have talked about.

Senator MITCHELL. On the question of flexibility, the high sulfur coal interests are opposed to the legislation to which you referred, the Simpson-Proxmire Bill. It is their contention that while you say you are for flexibility, by providing that either scrubbing or fuel switching to low sulfur coal must occur within a short period of time, you, in effect, are requiring switching to low sulfur coal. They regard your bill as really an effort to advance the interests of low sulfur coal to the exclusion of high sulfur coal interests. What is your response to that?

Governor SUNUNU. Senator, we have suggested that the flexibility go to the point where the states can make, on the basis of this legislation, within their own states, additional requirements. The fact is that a great deal of the high sulfur coal is used within the states in which it is mined.

If those States choose to protect their industries by providing some kind of an incentive for scrubbing versus use of clean coal, I am sure that they will take full advantage of the economic incentives that they can provide to do that. It was in an effort to share with those economic incentives that I brought up the kind of agreements that we ought to urge as policy, not necessarily as part of legislation, where we would, in New England, for example, continue to try and work out an agreement to buy electric power from states like West Virginia, where they produce relatively high sulfur coal, and parts of those states.

I think, recognizing that we are all in this together, most of the high sulfur coal usage could be protected by high sulfur coal generating states, by adding additional incentives within their own state that would inhibit the import of low sulfur coal to their own utilities.

Senator MITCHELL. Their point is that by having such a short period of time, and mandating one of two alternatives, you have, in effect, excluded the alternative that takes a longer period of time. They regard this as a thinly disguised effort to enhance the use of low sulfur coal to their detriment.

Governor SUNUNU. I think that what people are trying to do under the clean coal technology legislation that is being discussed, plus what is here, plus the flexibility that allows those states that are producers to inhibit the import into their own state of low sulfur coal, in combination with the provisions of encouraging the purchase of additional power from those states, is the kind of balance that would work out in the long run without being an economic disincentive to those states to participate.

Senator MITCHELL. Thank you very much, Governor. We do look forward to working with you. The sponsor of this legislation, Senator Simpson, has been a very active and constructive participant since this process began actually seven years ago. We hope very much that we can heed your suggestion, take the best out of all of these bills and, hopefully, finally move some legislation.

Governor SUNUNU. Thank you again for the chance to appear before you.

Senator SIMPSON. Mr. Chairman, not for Governor Sununu, but I think it is important to say that I have not ever been involved in just an effort to promote western low sulfur coal. I said that when I first came on this committee. I say it now.

I watched the percentage reduction requirement from afar when I was practicing law in Cody, Wyoming, and I thought that that was the most blatant little political gimmick created between high and low sulfur coal, and I didn't want to be part of that.

I think that we have to remember two things. Your bill is not destructive to western low sulfur coal. It may be to eastern low sulfur coal, but not to western. The freight rates are a very important part of this. We have to keep that in mind. Nuclear, and I have been a promoter of nuclear energy, that does not do anything for low sulfur coal. Second in the Nation is the State I represent in coal.

I am just looking at how you get it done, and I think that we have to get it done. The flexibility, I don't care if your guidance is in the statute, but whatever we have to do, we have to do. We have to have flexibility, that is what I am ready to do, but I'm not not here promoting low sulfur coal.

Senator MITCHELL. I thank you very much, Senator, and we do look forward to that.

[Governor Sununu's written statement follows:]

TESTIMONY OF HON. JOHN H. SUNUNU, GOVERNOR OF NEW HAMPSHIRE ON BEHALF OF THE ALLIANCE FOR ACID RAIN CONTROL

Mr. Chairman, Members of the Subcommittee, it is a pleasure to appear before you this morning on behalf of the Alliance for Acid Rain Control. As most of you know, the Alliance is a nationwide coalition of governors, corporate leaders, environmentalists and leading academicians committed to winning passage of cost-effective acid rain control legislation.

Mr. Chairman, you and the members of this Committee deserve a great deal of credit for spearheading the effort to craft legislation to reduce sulfur dioxide and nitrogen oxide emissions and stem the damage to our sensitive lakes and forests. Coming from New Hampshire, I can tell you that we in the northeast are deeply concerned about the decline and death of many of our lakes, the deterioration of visibility, the wearing away of valued monuments and buildings, and the increasing evidence of forest damage caused by acid rain and ozone. And this concern is shared by governors and other Alliance members from the south, the west and the upper midwest.

We are even more dismayed by the nearly seven years of polarization in Congress which has stymied efforts to stop the environmental damage. I am here this morning to urge this Committee to help end the polarization by moving legislation which is more moderate than past efforts, that recognizes that the costs of control do in fact matter, that recognizes that it is more important to get started on controlling acid raid than it is to craft the perfect environmental solution.

As you know, the Alliance has worked closely with Senators Alan Simpson, Bill Proxmire, Gordon Humphrey, Harry Reid and others to produce S. 316. We believe this bill meets the goals I have just outlined. It is a reasonable, cost-effective piece of legislation. It relies on a two-phased approach to achieve a ten million ton sulfur dioxide reduction and a three million ton nitrogen oxide emission reduction. And it's a great buy for consumers, less than $3 billion annually. Three billion dollars a year may sound like a large amount of money, but when you realize that the electric power industry collected more than one hundred thirty five billion dollars in gross revenues in 1985, three billion dollars annually to stop the damage to our lakes and forests does not seem too much to be a high price. In comparison, ICF, Inc. estimates that S. 321 would cost more than $10 billion annually and S. 300 more than $20 billion per year.

The secret of the Proxmire-Simpson bill's low cost lies in three factors: size of the emissions reduction, flexibility of approach, and phasing of reductions. According to EPA/ICF analyses, the costs of acid rain control double as you increase the SO_2 reduction from ten to twelve million tons and double again as you reach a 14 million ton reduction. In addition, flexible approaches which allow states and companies to select the least costly techniques to clean up emissions are dramatically cheaper than plant-specific reduction requirements such as those found in the Stafford bill, S. 300. This is because plant-specific reduction requirements force you to put technological controls on every plant, rather than concentrating cleanup at larger units and switching fuels at smaller units with high retrofit costs. Since with acid rain, we are really only interested in reducing the overall loadings of sulfur dioxide and nitrogen oxide in the atmosphere, plant by plant requirements are unnecessary. Finally, phasing the reductions insures that lower costs options are pursued first. More time is provided for the development of clean coal technologies that may reduce the cost of the second phase of emission reductions. And states and utilities have more time to make changes to their second phase strategies based on the extensive research now underway.

While the difference in costs between the Proxmire-Simpson bill and your bill, Mr. Chairman, are at first glance fairly large, they can be easily reduced by a melding of the two bills. Combining the cost-saving features of the Proxmire-Simpson bill with the solid structure and strengths of the Mitchell bill will produce an acid rain package with broad support in the Senate. Your bill relies on the flexible statewide emissions reduction approach that we favor. However, some of the provisions in section 183 (Special Rule for Growth) of S. 321, undercut this solid approach. I would suggest several modifications to S. 321:

(1) deletion of the requirement in section 183 that once a power plant reaches thirty years of age it must meet a plant-specific emission rate of .9 lbs per million Btus. This provision forces the use of scrubbers on most power plants and dramatically increases costs without achieving any additional emission reductions.

(2) modification of the provision in section 183 creating an absolute ceiling on all sources of SO_2 with the ceiling shrinking as old plants retire. This provision would stifle new economic growth. But simply limiting the cap to emissions from old dirty plants would prevent any serious emission increases while preserving the opportunity for needed economic growth.

(3) modification of the nitrogen oxide emission reduction requirements of section 182 to insure that we get the largest reduction we can from each plant through cost-effective techniques. This provision needs to be restructured to require a 3 million ton NO_x reduction and a target emission rate for each major category of power plant. This will insure that high NO_x emitting boilers such as cyclones are not forced to use very costly, relatively unproven technologies like selective catalytic reduction but are required to achieve a cost-effective reduction.

(4) inclusion of explicit phases in the legislation with a 6 million ton SO_2 reduction required by 1993 and a second 6 million tons by 1998. Inclusion of a first phase requirement will get reductions underway early with obvious environmental benefits.

(5) inclusion of a provision to allow intra-utility system trading across state lines. Currently, most major utility power pools use central economic dispatch to hold down the cost of electricity to their ratepayers. With the advent of acid rain controls, utility systems can save consumers 10–15% of the potential rate increase if

they are allowed to design least cost controls for their system as a whole. Section 184(c) needs to be amended to permit such interstate trading.

PROVISIONS TO RESTRICT FUTURE GROWTH IN EMISSIONS

Let me expand a little more on our concerns with section 183. As noted earlier, the requirement that each power plant when it reaches 30 years of age must meet a .9 lbs per million Btus emission rate dramatically increases the cost of acid rain compliance. It does this for two reasons: first, the .9 lb emission rate effectively bars the use of all eastern low sulfur coal and perhaps half of western low sulfur coal, since none of this coal can meet a standard when burned directly. This means that plants in the central midwest, south and east must use scrubbers or other technological means to meet the standard, thereby driving up the cost. Second, the plant-by-plant emission standard means every plant must comply—the advantages of the flexible statewide least cost approach found in the heart of S. 321 are effectively negated by this provision. States and utilities who took the least cost approach to comply with the initial 12 million ton reduction requirements would simply be forced to reverse their field and turn to scrubbers in most situations.

In addition to the cost considerations, this provision is questionable from an environmental standpoint. It does not achieve any additional emissions reduction beyond what would be achieved by the basic 12 million ton SO_2 emission reduction requirement. What's more, by forcing the use of scrubbers, it dramatically increases our country's waste disposal problem. For every ton of SO_2 removed from stack gases through the use of wet limestone scrubbers, we generate three tons of limestone sludge. If ten million tons of SO_2 are removed via scrubbers, we will face the problem of disposing of 30 million tons of limestone sludge each year. We don't need to create new environmental problems at the same time we're trying to stop the ravages of acid rain. Nor does the provision help to hold down future emissions growth, despite the heading, Special Rule for Growth, of this section of the bill. In fact, use of scrubbers carriers a 3.5% energy penalty to utilities. In other words, 3.5% more electricity is needed to run the scrubbers. A 3.5% increase in electricity demand will result in a concomitant increase in SO_2 emissions. So, this provision may actually increase out-year emissions rather than holding them down.

As you know, section 183 gives states the option of complying with either the 30 year .9 lb provision or an absolute cap on all emissions which shrinks as older plants retire. I believe a cap is a much better approach to controlling future growth in emissions, but as I noted earlier, a cap limited to existing sources makes much more sense. Existing plants in the lower Midwest are currently operating at rates as low as 50% of capacity. The potential clearly exists for increases in emissions from these plants after achievement of the 12 million ton reduction in 1996. In contrast, the potential for increases from new plants is fairly small. EPA/ICF estimate that new sources will add 3,400,000 tons of SO_2 emissions by the year 2000. If new source performance standards are tightened administratively between now and 2000, this increase will be even smaller. Under these conditions, it seems hard to make the case that we need a cap on all sources. Yet for a growth states like the Carolinas, Florida, and Texas, such a cap could be quite onerous.

NORTHEAST-MIDWEST POWER INTERCONNECTION

As a conclusion to my remarks this morning, I would like to outline to you a proposal to help solve the acid rain problem through cooperation between the midwest and the northeast. Governor Arch Moore of West Virginia and I have championed the idea of building a new transmission line to carry 1000 megawatts of excess power in the lower Midwest to New England. Because of New England's concern about acid rain, we have included a novel idea as a part of the proposed sale. Purchasers of the power in the northeast would bear the costs of both the construction of the power line and the capital costs of installing scrubbers on 2,000 megawatts of capacity in the midwest. The installation of scrubbers on twice the capacity of the sale would insure that sulfur dioxide emissions would be reduced by nearly 500,000 tons and would protect the jobs of approximately 2500 high sulfur coal miners in Ohio and West Virginia.

The Center for Clean Air Policy, a Washington-based think tank established by governors, has worked with ICF, Inc. in analyzing the economic impacts of this proposal. As part of a larger study of the costs of acid rain control to the American Electric Power system, the Center and ICF found that such a sale would result in a delivered price to New England of 4.6 cents per kilowatt hour in 1995 and 7 cents per kwh in the year 2000. This compares very favorably with CBO's estimate of 1995 average electricity costs of 8 cents per kwh for New England. In short, this proposal offers benefits to both regions—more demand for excess power and protection of coal miners' jobs in the midwest and lower energy costs and reduced acid rain in the northeast. It has the added advantage of being easily combined with any federal acid rain legislative proposal. When combined with an acid rain law, it offers the opportunity to Ohio and West Virginia to protect a signficant number of coal miners jobs without increasing the cost of complying with the acid rain law above what the cheapest strategy would require. The Center will be releasing the full study to the public sometime next month.

CONCLUSION

Mr. Chairman, thank you again for the opportunity to appear before you today. I particularly appreciate the Committee's courtesy in arranging the schedule for this hearing. I want to conclude by noting that we have a great opportunity to break the congressional deadlock on this issue this year. The combination of S. 316 and S. 321 could produce a bill with broad support in the Senate and in the Congress. We in the Alliance stand ready to help you in any way we can to achieve our shared goal of enacting cost-effective acid rain legislation.

Senator Mitchell. The first panel includes: Dr. Haluk Ozkaynak, Mr. Scott Matheson, Mr. George Cranston, Mr. Edward Gibbs, Mr. David Hawkins, Mr. Harry Storey, Mr. Bruce Bertelsen, and Ms. Ruth Gonze.

Would they all please come forward?

Ms. Gonze and gentlemen, welcome. We look forward to hearing from you.

As you can see, this is a large panel and there is one to follow, so I will for the benefit of all witnesses, those who are at the table now and those who will follow, restate the committee's rules, which are that all written statements will be placed in the record in full. They are regularly reviewed by the members of the committee. We ask that your oral remarks be limited to 5 minutes and that they summarize and hit the high points of your testimony.

Ordinarily, we are flexible with the rule because we don't have this many witnesses. But with a hearing total of 16 witnesses, it is necessary that we do enforce the rules.

So this light that I am pointing to now, the green light, means that you can keep talking; the orange light means start thinking about your summary; and the red light means stop.

In fairness to the Senators and the other witnesses, I will enforce the rule today.

I again welcome you all and we will begin with the witnesses in the order that they are listed.

Dr. Ozkaynak, welcome.

STATEMENT OF HALUK OZKAYNAK, ENERGY AND ENVIRONMENTAL POLICY CENTER, HARVARD UNIVERSITY, CAMBRIDGE, MA

Mr. Ozkaynak. Good afternoon. It is a privilege to be here today for the hearings on important environmental and health issues regarding radon and acid precipitation.

Let me begin by quickly introducing myself. I am with Harvard University's Energy and Environmental Policy Center, the EEPC, located at Cambridge, Massachusetts. My principal responsibilities at Harvard include conducting and directing research on exposures and health effects of air pollution. Today I am here to offer testimony regarding health effects of population exposures to air pollution and acid precipitation precursors.

About 6 years ago a multidisciplinary study was initiated at Harvard University's Energy and Environmental Policy Center to examine the potential health effects associated with exposures to airborne particles. The research recently conducted at the EEPC have focused on major analysis limitations and has attempted to account for any of the major deficiencies primarily associated with the available aerometric or exposure data sets.

Considering a number of methodological refinements and incorporating the necessary extensions to the pollution data sets, we were then able to apply statistical risk analysis techniques to the presently available mortality and morbidity data sets with confidence.

Now I would like to briefly summarize the principal findings from our recent assessments on air pollution health effects, derived, again, from our epidemiologic studies, utilizing the latest mortality, morbidity, and aerometric databases.

Additional information can be found in my written testimony which has been provided.

Findings from our recent epidemiologic analyses, especially from our cross-sectional mortality analyses, indicates that variations in ambient fine-particle and sulfate mass are indeed more important to public health than variations in the levels of particle pollution measures, which also include coarse particles such as total suspended particulate matter or inhalable particles.

In particular, sulfates and fine-particle mass were often shown to be very significant predictors of variations in residual mortality throughout the U.S. even after controlling for socioeconomic factors.

Our analyses of fourteen years of daily mortality and records of air pollution in New York City also corroborated these findings; namely, measures or surrogates of fine-particle mass were again found to be significantly associated with observed mortality.

Our finding of positive air pollution health effects are also supported by other epidemiologic studies and analyses performed in different age groups. For example, a major prospective health effects study is now being conducted by the Harvard School of Public Health to examine the relationship between air pollution and respiratory health status of children living in six cities in the eastern and midwestern United States. Findings reported from this study suggest effects of ambient sulfur oxides and suspended particles on respiratory health of preadolescent children. Epidemiologic studies of air pollution effects on the elderly, on the other hand, are not that many. However, there is some evidence from cross-sectional mortality investigations that pollutants such as sulfates are significantly associated with the mortality of population in the age group 65 and older.

Now, the most important conclusion that can be derived from all of the epidemiologic investigations we have performed is that air pollution, especially particulate pollution, even at current levels, could be of concern to public health in terms of its contribution to excess mortality and morbidity.

In every epidemiologic investigation that we have performed over the past 6 years, we have repeatedly found a 2 to 5 percent air pollution effect on human mortality and morbidity. We find it very difficult to reject these consistent findings, based on arguments sometimes raised about the possible influence of systematic errors or omitted confounding variables which may be uniformly biasing all of our results.

Senator **Mitchell**. Did I understand you to say that in every such investigation over the last 6 years you found a 2 to 5 percent air pollution effect on mortality and morbidity? Is that what you said?

Mr. **Ozkaynak**. That is correct. The range of effects we have seen on separate investigations looking at either the mortality or morbidity endpoint often ranged somewhere in that 2- to 5-percent range.

I would like at the same time, however, to note some of the implications of our research findings to future environmental research and policy decisions regarding air pollution controls. Over the last decade, emission controls, relocation of facilities, and changes in available fuel has gradually reduced total suspended particulate levels, and decreased the sootiness of the aerosols in most urban areas in the U.S. In contrast, however, ozone concentrations and the concentrations of fine particles and sulfates, which may represent an important toxic component of airborne particles, have not decreased.

In order to refine our present estimates of air pollution health effects, it is important to collect and analyze exposure and response data on acidic aerosols and oxidants that are involved in the production of toxic particles and acid precipitation. In the meantime, however, it seems that it would be prudent to develop environmental and public health policies based on the collective evidence from epidemiologic studies which indicate that the current pollution levels in the U.S. are likely to cause premature mortality and human morbidity.

Thank you very much for your attention.

Senator **Mitchell**. Thank you. I think you would have finished right on time had I not interrupted you and taken your time. So any delay on your part is mine.

Thank you very much, Doctor. That was very important testimony.

Governor Matheson, welcome. We always look forward to hearing from you in the Congress, and we look forward to hearing from you today.

STATEMENT OF SCOTT MATHESON, REPRESENTING WESTERN ENERGY SUPPLY AND TRANSMISSION ASSOCIATES

Mr. **Matheson**. Thank you very much, Mr. Chairman. I am very pleased to have the opportunity to appear before you and your colleagues on this very critical and important legislation on acid rain. I am appearing today representing an organization called the Western Energy Supply and Transmission Associates. It is "West Associates," for short.

It is kind of an interesting group. It is made up of private investor utilities, publicly owned power companies, municipalities in the public business. I will just mention a name or two: Arizona Power Authority; City of Colorado Springs; Los Angeles, Pasadena; I can't resist, Colorado-Ute Electric Association, Inc.; several large, several small. It is an interesting mix of utilities that have banded together to kind of present in this particular context their interest in this very important subject of acid rain.

I guess I bring today the western flavor. I do not apologize for that. We think it is a very important ingredient in the overall resolution of the problem.

We would ask the committee to take into consideration the different regional factors that make up the way the west is constructed so that when the legislation you consider is placed into context it takes those very important elements into account.

For example, the western power plants create only two percent of the Nation's SO_2 and four percent of NO_X. We scrub more than four times the capacity in the west that the east scrubs. That came about, you remember, with the Clean Air Act amendment in 1976, and we have had a tremendous investment in new construction that has related itself into a lot of scrubbing. As a matter of fact, we now have invested somewhere over $3 billion and have committed about $3.5 billion to address that problem.

The data shows that the western emissions increase over the next twenty years will only be about two percent SO_2 and about sixteen percent NO_X, even though there is an eighteen percent increase contemplated in our generation.

So we are asking that that western environment be taken into consideration where the acid rain deposition is only about three to twenty percent of what it is, unfortunately, on the eastern end of our country.

We are concerned about fees, as we all are. We have spent the $3.5 billion—or committed it, as I mentioned to you—for pollution control equipment over the past ten years. That impact ought to be fairly given consideration in the nature of how the problem is solved.

I also was checking, and most western States, as Senator Baucus pointed out, have very strict emission limits in almost all of the western States today and are basically investing heavily to solve that problem.

Senator Humphrey made a couple of excellent points about doing the type of job that costs the least amount of money and gets the best results. I don't need to tell you that is just common sense. But we think it ought to be mentioned because there are a couple of things in the chairman's bill that we think could be amended to go for trading, fuel switching, Statewide bubbling, and the type of thing that makes sense on a cost-effective basis.

We are concerned about economically impossible controls. It doesn't make any practical sense on an individual case-by-case basis. But we think that the way to do that is to establish a floor for NO_X.

I am not going to get into the bills because I don't have the time to do that. I would like to conclude my comments, though, by having told you of those traditional western principles we follow, as outlined in my testimony. I think that if we are going to have acid rain legislation, I would incorporate by reference what Senator Humphrey said, so that I can save the committee's time, and that would give you the essence of what I would say about the bills. Thank you.

Senator MITCHELL. Thank you very much, Governor. You have established an impressive standard of brevity that the remainder of the witnesses will be hard-pressed to meet.

Mr. Cranston?

STATEMENT OF GEORGE CRANSTON, DIRECTOR, SPECIAL PROJECTS, FLAKT, INC., STAMFORD, CT; REPRESENTING INDUSTRIAL GAS CLEANING INSTITUTE, ACCOMPANIED BY JEFFREY SMITH, EXECUTIVE DIRECTOR, INDUSTRIAL GAS CLEANING INSTITUTE

Mr. CRANSTON. Good afternoon, Mr. Chairman and members of the subcommittee. My name is George Cranston. I am director of special projects for Flakt, Inc. Flakt is a member of the Industrial Gas Cleaning Institute, in whose behalf I am appearing. Also with me today is Jeffrey Smith, IGCI's executive director.

IGCI is the national trade association of principal manufacturers of stationary source control equipment, including equipment such as flu gas desulfurization systems that could be installed on a retrofit basis to satisfy the sulfur dioxide reduction requirements in the pending acid rain control bills.

We are here today as part of our mission to assure a strong and workable national air quality policy that provides public health, environmental quality, and industrial progress.

The FGD processes now in operations are well proven. Those processes listed in table 1 have been in use for five to 15 years and are well demonstrated on large utility steam generators. As shown in table 2 of IGCI's written statement, there are approximately 148 FGD systems now in use in the country, associated with nearly 65,000 megawatts of power generating capacity.

Some of these systems have demonstrated 90 to 95 percent SO_2 efficiencies on high-sulfur coal. Chemical additives can improve these SO_2 removal efficiencies even further.

The reliability of recently installed FGD systems have been equal to the reliability of the entire plant. New York State Electric and Gas has stated in an annual report that a new FGD system starting up in August of 1985 achieved one hundred percent availability during the first year of operation. These high-reliability operation has been achieved through a better knowledge of the process chemistry, selection of proper materials and construction, the use of redundant equipment in critical areas, and, to a great extent, experience by the utilities in the operation of such plants.

There was also a question about the capacity of the U.S. air pollution control industry to retrofit existing steam generators with FGD to meet the requirements of an acid rain control bill similar to S. 321. The FGD systems supplier business as well as the associated fabrication of machinery, electrical, and instrumentation industries is severely depressed at present and has a great deal of unused capacity.

In this country, as opposed to West Germany and Japan, there has been a very limited number of steam generators that have been retrofitted with FGD for SO_2 control. There is thus not much actual cost data.

Based on the worldwide manufacturing experience of IGCI members as manufacturers and guarantors of FGD systems, however, IGCI believes that reasonable operating costs for FGD retrofit is six mills per kilowatt hour. Assuming that 100,000 megawatt electrical capacity must be retrofitted with scrubbers under an acid rain bill to achieve a 10-to-12-million-ton SO_2 reduction, as stated by the Electrical Power Research Institute before this subcommittee on March 4, 1987, and an average annual capacity factor of 65 percent, the first-year cost would be $3.4 billion. This is less than one-third of the $12 billion levelized cost stated by some industry groups.

If it is assumed because of plant retirement and fuel switching that only 30,000 megawatts need to be retrofitted to achieve a 10-to-12-million-ton SO_2 reduction, the first-year cost to retrofit would be about $1 billion.

The cost and other information in this statement are discussed and supported at length in an IGCI report entitled "Acid Rain Control Briefing Document on Cost of Retrofitting Flu Gas Desulfurization Systems to Existing Coal-Fired Boilers," which will be released in several weeks. IGCI will submit this document for the record and see that each member of the subcommittee receives a copy.

In conclusion, IGCI's analysis of experience gained over the last 10 years convinces us that current FGD systems can be built and retrofitted for coal-fired boilers. These proven systems and the technology are economically available to achieve significant SO_2 emission reduction now. Accordingly, to delay action on the premise that heretofore-undeveloped techniques would reduce the cost significantly or at all is questionable.

Thank you for the opportunity to appear and make IGCI's views known.

[The tables attached to Mr. Cranston's statement follow:]

Table 1

MAJOR UTILITY FLUE GAS CONTROL PROCESSES IN OPERATION IN THE UNITED STATES

Non-Regenerative FGD Processes

- Lime slurry scrubbing
- Limestone slurry scrubbing, with or without gypsum production
- Double alkali scrubbing, lime regeneration
- Sodium scrubbing
- Spray drying with lime or sodium
- Dry injection with sodium
- Flyash scrubbing with high alkali ash

Regenerative FGD Processes

- Wellman-Lord scrubbing, sulfuric acid by-product
- Magnesium oxide slurry scrubbing, sulfuric acid by-product

Table 2

SUMMARY OF OPERATING FGD SYSTEMS IN THE UNITED STATES BY PROCESS AS OF MID-1987

Wet Systems	**No. Units**	**Megawatts**
Limestone	75	34,300
Lime	42	15,500
Dual Alkali	6	2,250
Sodium Carbonate	4	1,550
Magnesium Oxide	2	730
Wellman Lord	5	1,900
Spray Dryer		
Lime	13	7,160
Sodium Carbonate	1	440
TOTAL	148	63,830

Senator MITCHELL. Thank you, Mr. Cranston.

Mr. Gibbs, welcome.

STATEMENT OF EDWARD C. GIBBS, VICE PRESIDENT, OPERATIONS, UNION PACIFIC RESOURCES CO., DENVER, CO

Mr. GIBBS. Thank you. Mr. Chairman and members of the committee, my name is Edward C. Gibbs. I am vice president of operations, Union Pacific Resources Company, the energy and mining subsidiary of Union Pacific Corporation.

As you know, our company was one of the first, and remains one of the very few, members of the business community to openly and actively support acid rain control legislation. While we do support acid rain controls, we support only those emission reduction programs that are cost effective. When I speak of cost effectiveness, I mean legislation that gives those who know best—namely, local utility managers—the freedom to choose from the widest range of pollution control options.

Turning to S. 321, Mr. Chairman, we cannot support this bill because we feel it is not cost effective. S. 321 is not cost effective primarily because it imposes a plant-by-plant emission standard instead of relying on Statewide targets.

The difference between Statewide and plant-by-plant standards is important. The plant-by-plant standard means the acid rain control program prescribed by S. 321 will cost between one-and-a-half and two times as much per ton of SO_2 as would an equivalent Statewide standard. S. 321 will cost more because the 0.9 pounds plant-by-plant standard eliminates the use of the most economical SO_2 reduction strategy. In fact, the plant-by-plant standard in S. 321 is set so low that really the only practical way to meet it is to use flu gas desulfurization units or scrubbers.

It has been suggested, Mr. Chairman, that the 0.9 pound plant-by-plant standard in section 183(b) of the bill was added in order to finetune future coal markets. We don't know that is what inspired the standard, but just in case that is the consideration I want to leave you with two thoughts about attempts to legislate coal markets.

First, any legislation that makes burning coal more expensive threatens the growth of the entire coal industry. Many of the proposals to finetune coal makers that have been devised here on Capitol Hill are based on econometric computer analysis. One crucial assumption in these models is the price of oil and gas. These models predict that the demand for coal will continue to grow in the future because they assume oil and gas will always be priced higher than coal.

This assumption may well be wrong. You can easily understand that if the differential between gas and coal prices narrows much more than it already has, that any major increase in the cost of burning coal will cut sharply into future utility demand for coal.

In other words, adding extra costs to acid rain legislation in order to finetune coal markets could very well finetune future growth right out of the coal markets altogether. So high-cost legislative efforts to finetune coal markets could wind up destabilizing the entire industry to a much greater extent than any cost-effective legislation ever could.

Second, it's worth remembering that past efforts to finetune coal markets have had a very poor environmental track record. In fact, the growth in SO_2 emissions at old power plants, the very problem being addressed by the bill, is a direct result of earlier efforts to finetune markets. Some members of this committee will remember that the percentage reduction requirement was added to the Clean Air Act of 1977 to protect high-sulfur coal markets and to prevent new power plants from using low-sulfur coal to reduce SO_2 emissions. This high-cost requirement makes new coal-fired power plants so expensive that utilities have in fact continued to use plants built before 1877 much longer than they originally had planned to. Today's higher SO_2 emissions from old power plants are thus the direct result of this market-tuning legislation.

My point in all this is simply that efforts to legislate coal markets almost always boomerang. More often than not, they create unforeseen problems that are usually worse than those they are designed to cure. In any case, they always saddle consumers and the economy with extra costs.

To sum up my comments, the plant-by-plant .9-pound standard in S. 321 is not cost effective, and it is not environmentally efficient. I want to urge you in the strongest way to drop this provision from your bill. The .9-pound plant-by-plant standard will not help the cause of acid rain legislation, and it risks driving away many friends and supporters.

Thank you, Mr. Chairman, for the chance to share our views with the committee, and I would be glad to answer any questions you may have.

Senator MITCHELL. Thank you, Mr. Gibbs.

Mr. Hawkins

STATEMENT OF DAVID HAWKINS, SENIOR ATTORNEY, NATURAL RESOURCES DEFENSE COUNCIL, WASHINGTON, DC

Mr. HAWKINS. Thank you, Mr. Chairman. I am happy to be before the committee again, although I wish it were on a topic other than acid rain. I would like to make just two points in my oral remarks with respect to some continuing arguments that are made against adoption of acid rain control laws.

The first is that contrary to claims that you will hear from other witnesses today, current pollution levels are not going to go away without the adoption of a new law, specifically with respect to utilities' sulfur dioxide emissions, they are nearly four times higher today than they were thirty-five years ago, and twenty-five years from now in the year 2010 EPA predicts that utilities' sulfur dioxide emissions will increase by another thirty-three percent. Utility NO_x emissions are predicted to grow by seventy-one percent between now and the year 2010. These predictions are not based on high growth rates, they are based on growth rates of 2.0 to 2.2 percent in electrical demand. Those are fairly modest.

Now, the Coal Association is trying to argue that emissions are going to go down. But as I point out in my testimony, if you look at their actual internal projections of coal demand, of coal demand in utilities, they predict that those will go up. Those predictions are even higher than EPA's, on which EPA's emission projections are based. So there is an inherent contradiction in the Coal Association's position.

We know how to reduce emissions. It doesn't happen naturally, it happens as a result of legislative action, and legislative action is what is needed to do the job.

Second, I would like to challenge Administrator Thomas' arguments made most recently to this committee in April that we are basically unable now to say anything useful about the benefits of controlling acid rain and that more delay really won't hurt.

My testimony discusses at some length an EPA staff study that estimates benefits from just eight of forty-four potential-effects categories that are affected by acid rain. They estimate annual benefits ranging from $4.5 billion to roughly $6.5 billion a year in just these eight categories with a midpoint estimate of around $5 billion a year. In current dollars this works out to be about a $9 billion-a-year cost today as a result of not enacting acid rain controls.

Now, many people will argue about the specific numbers in that EPA study, including us. The point I would like to stress is that we should not lose sight of the fact that there are very large benefits to controlling acid rain and there are very large costs associated with our failure to control acid rain. Each year that we delay enactment of a bill, we are costing the American public billions of dollars.

I would just like to make a couple of points on the specific legislation before the committee. S. 300, Senator Stafford's bill, and S. 321, the chairman's bill, are both very strong bills that deserve the support of the committee. We disagree with the claims that Senator Stafford's bill is extreme. We think that is a characterization of those who are describing that bill rather than the bill itself. It is a statement of environmental principle that all of us should feel comfortable with. It is a sad state of affairs that too many of us don't feel comfortable with it.

With respect to the chairman's bill, we think it is an attempt to acknowledge the fact that not everyone is ready to sign on to the principles that are enumerated in Senator Stafford's bill. The chairman's bill is a very strong bill, a bill that we support, a bill that should garner a broad range of support, and we are disheartened to see a lot of the criticism of it, since it does attempt to compromise on many points in order to meet certain objections.

Finally, I would like to mention S. 316, Senator Proxmire's bill. We respect the fact that it is an attempt to frame a compromise, but we honestly have to point out a number of major defects in the bill from an environmental perspective.

First, the reductions required in that bill are simply not adequate. EPA predicts that the Proxmire bill will reduce SO_2 emissions from 1980 levels by only 6.6 to 6.8 million tons a year, and compared to 1980 levels of NO_x, there will be zero reductions in utility NO_x emissions. That is not acceptable.

Second, there is a two-phased program in the Proxmire bill that again we understand the motivation behind it, but we think in operation it will create enormous problems of program uncertainty and lead to demands for change in the overall legislation on a fairly rapid schedule. We think that is a mistake.

Third, the Proxmire bill requires no control in the western United States. We think this is shortsighted. We think the west has very sensitive resources that deserve preventive measures now in legislation. If we wait until we have a body count, we will be too late.

Fourth, the Proxmire bill does not do anything about the existing immunity of existing sources from new-source performance standards forever, no matter how long they operate. S. 300 and S. 321 do not address that problem, and we think it has to be addressed.

Finally, controls on mobile sources are also important. While there are controls on mobile sources in the Proxmire bill, they don't represent what we can and should do with respect to those sources.

Finally, in conclusion, I would like to say we have been debating this matter in the public arena for over a decade and in this committee specifically for seven years. We hope the committee will act quickly and show once again its leadership. I thank the committee for its attention.

Senator MITCHELL. Thank you, Mr. Hawkins.

Mr. Storey.

STATEMENT OF HARRY L. STOREY, PRESIDENT, ALLIANCE FOR CLEAN ENERGY, WASHINGTON, DC

Mr. STOREY. Thank you, Mr. Chairman. Mr. Chairman, members of the committee, my name is Harry L. Storey, and I am president of the Alliance for Clean Energy, or ACE, as we are known. ACE is a coalition of low-sulfur coal producers, transporters, and consumers, with operations in both the eastern and western parts of the United States. ACE does not support any specific acid rain control bill.

But even though we do not support a specific bill, that does not mean we view all acid rain proposals in the same light. In fact, we believe that if Congress does enact new SO_2 reduction requirements, it should be based on three key policy principles. First, acid rain legislation must be cost effective. To be cost effective, the utilities must be given the opportunities to select the most economic option to meet the emission standards.

Second, acid rain control legislation should be flexible, allowing for changes in emission targets as more is learned about the cause and effect of acid deposition. Emission averaging for a large geographical area and/or utility systems should be permitted.

Finally, the cost of meeting new SO_2 emission requirements should be borne by those who are causing the excess emissions.

These principles, Mr. Chairman, are important because they will maximize the effectiveness of acid rain control legislation and minimize the cost to the consumers. In our opinion, Mr. Chairman, S. 321 is not cost effective. It is not cost effective, because it relies on a plant-by-plant SO_2 emission standard instead of a Statewide standard.

We are aware that S. 321 also includes Statewide SO_2 emission targets that must be met by 1996. But those Statewide targets are irrelevant because of section 183(b). Section 183(b) states that when a power plant turns 30 years old, it must meet an emission limit of 0.9 pounds of SO_2 per million Btu's. It is important to remember that S. 321 is aimed primarily at power plants built before 1971. Many of those power plants will be 30 years old by 1996 and virtually all the rest will be 30 years old within a few years after that date.

As a practical matter, the Statewide targets are meaningless because they are effectively superseded by the 30-year plant-by-plant 0.9 standard. S. 321 sets two overlapping standards: a Statewide standard, and a plant-by-plant standard. Of these two standards, the plant-by-plant standard is the one that the utilities will have to meet.

You might ask why is the 0.9 plant-by-plant standard not cost effective. Under this standard, utilities won't be able to use any of the low-cost compliance options or strategies that they could use if the bill used Statewide targets, such as coal washing, coal blending, and fuel switching. The plant-by-plant standard will increase the cost to consumers with no additional environmental benefits. Since the 0.9 Statewide average is the environmental equivalent of a 0.9 plant-by-plant standard, the question that comes to our mind is why choose the most expensive alternative.

We have heard it said that this standard is designed to discourage fuel switching and to preserve high-sulfur coal's share of the market. If that is a factor in your thinking, I want to urge you to reconsider for the following reasons: It is safe to say that extra costs to consumers in electric-intensive industries will dwarf any economic benefits you might hope to see in the high-sulfur coal industry.

Second, raising the cost of burning coal could cause utilities to burn oil and gas. The total coal industry in that case would lose.

And finally, consumers should not be required to pay the cost of market protection for high-sulfur coal. The objective of environmental legislation should be to protect the environment, not markets.

In closing, Mr. Chairman, I want to urge you to eliminate the plant-by-plant standard. Do not legislate out or discourage the use of low-sulfur coal. Low-sulfur coal is the surest, fastest, and usually least expensive way to reduce SO_2 emissions. Return to the low-cost, cost-effective free-market approach that characterized your earlier bills.

Mr. Chairman, thank you for the chance to share our views with the committee. I would be pleased to answer any questions.

Senator MITCHELL. Thank you. Mr. Storey, I merely want to point out that I believe you have misunderstood my bill when you say it has two overlapping standards. The standards are optional, and one or the other can be selected. But it is incorrect to state that the standards are overlapping and therefore will be applied at the same time. Just for clarification purposes. In the bill as written, they are optional. They both don't apply.

Mr. STOREY. Mr. Chairman, could I just comment?

Senator MITCHELL. Sure, go ahead.

Mr. STOREY. I realize that maybe I wasn't too clear, because I realize that utilities would be able to elect another option, and that is the Statewide cap, and those emissions would be capped at the 1996 level. And certainly we do not believe—and we may be wrong—but we don't believe that any utility would accept a Statewide cap based on 1996 emissions and then on top of that it would be an ever-tightening cap because they would have to reduce that cap by the emissions from any plant that retired.

So we really considered that, Mr. Chairman, as an option that no one would elect. But that may be incorrect.

Senator MITCHELL. That is a fair criticism, and I accept that. But I just wanted to make clear that they are not overlapping. Overlapping suggests that they both apply simultaneously, and they could not, under the provisions of the bill, do so.

Mr. STOREY. Thank you.

Senator MITCHELL. Thank you very much.

Mr. Bertelsen, go ahead.

STATEMENT OF BRUCE BERTELSEN, EXECUTIVE DIRECTOR, MANUFACTURERS OF EMISSION CONTROLS ASSOCIATION

Mr. BERTELSEN. Thank you very much, Mr. Chairman. The Manufacturers of Emission Controls Association is a nonprofit association of companies that manufacture exhaust emission controls. Our companies are probably best known for their pioneering efforts in the development and application of catalytic converters to motor vehicles. The catalytic converter played a key role in making the mobile-source pollution control program one of this Nation's great environmental success stories. Many of our companies have drawn on their extensive experience with catalytic technologies to develop and apply catalytic controls to stationary sources.

In the time available this afternoon I would like to focus our testimony on the application of catalytic controls to reduce NO_x emissions from stationary sources.

As a supplement to our testimony I would like to submit for the record a copy of a letter from MECA to Senator Stafford dated May 29, 1987, responding to questions concerning the use of catalytic controls to reduce NO_x and VOC emissions from stationary sources, and a letter dated June 8, 1987, to Mr. James Lents, executive officer, South Coast Air Quality Management District, discussing the application of catalytic controls to a number of sources for which the South Coast Air Quality Management District may require emission reductions.*

I would like to emphasize several points. Advanced catalytic control technology, which is available and being used around the world, could greatly reduce NO_x emissions if it was widely applied to the appropriate stationary sources in this country. These catalytic controls are reliable, currently used, and achieve emission reductions of over ninety percent from stationary rich-burn engines and up to ninety percent from utility and industrial boilers, gas turbines, and a variety of lean-burn engines.

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* The material referred to has been received and is retained in committee files.

However, they are being used on only a fraction of the potential sources. For example, the largest potential use for selective catalytic reduction, SCR, one form of catalytic control, is to reduce NO_x emissions from power plants and large industrial boilers, including retrofit of existing major sources with control systems.

But SCR technology in powerplant application has received only limited attention in the United States. Ironically, while this technology was invented in the United States, it is being widely used in Japan and now increasingly in West Germany. In Japan, where NO_x standards were established for powerplant emissions, SCR has been in commercial application since 1974. To date, SCR technology has been applied to over two hundred units in Japan, where systems are achieving control efficiencies of up to ninety percent with minimal operating difficulties. SCR technology is now being employed in West Germany to permit powerplants to meet the recently enacted NO_x control regulations designed to protect German forests from acid deposition. Once power plants are fully equipped with these control systems, power plant NO_x emissions are expected to be reduced by 80 percent in West Germany.

Both of these industrial Nations have surpassed the United States in control of NO_x emissions from power plants, again, using U.S.-invented technology.

The high level of emission reduction achieved through catalytic control of NO_x emissions comes at a cost. The incremental increase in cost, however, is reasonable considering the higher NO_x removal efficiency. If NO_x controls were required, particularly for new and existing utility and large industrial boilers, a major part of the technology development effort would be focused on reducing the costs of control.

Significant reductions in NO_x emissions will occur only if specific standards are adopted by Congress. The success of the mobile-source emission control program in which Congress sets specific standards clearly demonstrates the effectiveness and the need for legislative requirements. Japan and West Germany have and will continue to experience significant NO_x reductions from stationary sources as a direct result of control requirements that have been established. The provisions in S. 300 which would require major stationary sources of NO_x emissions to achieve emission reductions equivalent to those attained by technology demonstrated to be available for existing sources in any OECD country could be met with SCR and would result in significant reductions in NO_x emissions.

In conclusion, if Congress adopts a comprehensive NO_x control program, our industry is committed to do its part to ensure that those standards are met. Thank you very much.

Senator **Mitchell**. Thank you, Mr. Bertelsen.

Now, Ms. Gonze, welcome. We look forward to hearing from you.

STATEMENT OF RUTH GONZE, ASSISTANT DIRECTOR OF GOVERNMENT RELATIONS, AMERICAN PUBLIC POWER ASSOCIATION

Ms. **Gonze**. Mr. Chairman, I am Ruth Gonze, and I represent the American Public Power Association. About seven hundred public power systems buy power at wholesale from investor-owned utilities in transactions regulated by the Federal Energy Regulatory Commission. Public power systems also generate about ten percent of the Nation's public power supply. We support effective, economical, and fair acid rain legislation, and have made specific suggestions in the past to accomplish that, which I am not going to repeat here today.

I would like to talk about the proposals in S. 911, and in amendment number 78 to S. 321, for Federal regulatory incentives to utilities to build cleancoal technology plants.

We support the development of cleancoal technology and the establishment of grant programs to achieve it. We do not believe that such programs should or need to be a substitute for acid rain control legislation; and we do not support the achievement of emission cuts through rate incentive programs designed to confer competitive advantages to the coal and private utility industries over other fuels, other technologies, and other sectors of the electric utility industry—or, secondly, through vitiating the consumer protections in Federal and State rate regulation.

This Congress is the first in which major Senate proposals would significantly restructure utility rate regulation to achieve emission cuts. If the regulatory provisions of S. 911 or similar bills were viewed on their own merits, I believe that few members of this committee would support the abrogation of basic consumer protections ensured only by regulation.

FERC regulation is the only protection for wholesale customers against monopolistic rates. State retail regulation is similarly essential for retail customers of utilities.

S. 911 makes consumers the deep pockets for coal producer and utility profit maximization. For any given level of emission reduction achieved, S. 911's rate breaks would be more costly and more economically damaging than mandated reductions.

The major impact of the bill is not in its grant provisions, but in the rate provisions of section 3. Rate breaks are not dependent on the need for commercial experience with new technology at all, but are given permanently to achieve widespread use of technologies which are already fully commercial.

Widespread use appears to be virtually unlimited in its application. The purpose of subsidizing widespreadness with ratepayers' money is apparently to make it profitable enough to clean up emissions that private utilities will forget how much they oppose more cleanup, and rush to the rescue of air quality.

Although the bill applies only to Federal regulation of wholesale sales, it also encourages utilities to shift their operations from State regulation to this very generous Federal regulation. They can do this simply by creating a generating subsidiary to build cleancoal technology plants, whose sales are wholesale transactions and thus regulated by FERC. The operating utility may now recover from retail customers its full wholesale purchase costs. State regulators have no authority to stop it no matter how outrageous the rate breaks are.

But the most astonishing thing that the bill does, is provide for exemptions from the Public Utility Holding Company Act and from rate regulation under the Federal Power Act. The conditions for this exemption are vague and ominous. They were not written for nothing.

If electric utilities do obtain exemption from the Public Utility Holding Company Act or the Federal Power Act under this provision, the following statutory protections will simply disappear:

Requirements for arm's-length dealings between utility affiliates; public access to electric utility rate information; and review and approval by FERC of utility rate increases, will disappear. Disclosure to and approval by FERC of interlocking directorates among utility companies; and the right to request FERC investigation of a complaint that a rate is excessive or discriminatory or that any rate or practice of a utility violates the antitrust laws, will disappear.

All of those statutory protections will disappear, Mr. Chairman. We think that sweeping repeal of statutory protections against monopolistic abuse should be rejected out of hand. But it absolutely requires close and detailed examination by the Congress on its own merits. It should be unacceptable for measures of such vast import to become bargaining chips in the acid rain debate.

Senator MITCHELL. Thank you very much, Ms. Gonze.

Thank you, ladies and gentlemen. We will now begin the questioning, and limit it to 5 minutes per Senator.

Dr. Ozkaynak, I want to go back to that statement you made because it seems to me a very striking and important statement, and I want to make sure I understand it.

I will read back your statement to you and ask you a question about it. You said, and I quote,

> In every epidemiologic investigation that we have performed over the past 6 years, we have repeatedly found a 2 percent to 5 percent air pollution effect on human mortality and morbidity.

Does that mean that 2 percent to 5 percent of deaths and illnesses in America are caused by air pollution?

Mr. OZKAYNAK. That is correct. About 2 percent of the mortalities, and even up to 5 percent, depending on the type of analysis that is performed, can be associated with air pollution variables that were used in those models.

Senator MITCHELL. All right. That is a very significant testimony, Doctor, and we appreciate it. We notice your statement is heavily annotated, and we will review that. We appreciate it.

We understand that at some point you have to leave fairly soon. You have a plane to catch.

Mr. OZKAYNAK. That's correct.

Senator MITCHELL. We appreciate your coming.

I wanted to ask questions of a couple of other witnesses. Mr. Gibbs and Mr. Storey, you both said almost exactly the same thing on one point.

Mr. Storey, you said the percentage reduction requirement made new powerplants so expensive to construct that utilities were forced to keep their older plants in operation much longer and to a greater extent than originally planned.

Mr. Gibbs, you said much the same thing. You said that this high-cost scrubbing requirement makes new coal-fired power plants so expensive that utilities have continued to use plants much longer than originally planned.

Mr. GIBBS. That's right.

Senator MITCHELL. You are both convinced of that. I note that because it points up one of the problems we have. Governor Sununu testified before us in behalf of the Alliance for Acid Rain Control, and made a diametrically opposite statement.

Mr. GIBBS. That's right.

Senator MITCHELL. He said that the environmental laws don't have anything to do with the extension of the life of these plants, and so it doesn't make any difference.

I ask you that. You're saying it's the contrary, it's the requirements of the laws that is causing the extension? That's your testimony, too, Mr. Storey?

Mr. STOREY. Mr. Chairman, I think that is certainly in our testimony. I didn't say that today. But let me just explain my or our understanding as far as the Alliance for Clean Energy is concerned. That is that we believe that a lot of old plants are still in operation because the cost of new plants is so great that the utilities have elected to continue running these old plants instead of building a new plant. I believe that the 12 new plants that came onstream last year—I just saw that number—averaged about a half a billion dollars.

Of course, about a third of this to 40 percent of it, I guess, is for environmental equipment. And we are not saying that it shouldn't be on it. It's just the simple fact that if you have to spend a half a billion dollars, you do an economic analysis as to whether or not you should continue to run this old plant. I think in that case that has happened, or we believe it's happened. We certainly don't have any finite figures that we could present to you.

Senator MITCHELL. No, I understand that.

Mr. Gibbs, you were critical in your statement of the provisions of section 183, the 0.9 standard, as was Mr. Storey. If that were taken out of the bill, would you support the bill?

Mr. GIBBS. If the plant-by-plant requirement were really in effect—I know there is an option in the bill, but I agree with Mr. Storey that the utilities would never take the cap option, they would always have to take the plant-by-plant option. If that plant-by-plant option was taken out and it was made a Statewide standard, then, yes, we would be able to support the bill.

Senator MITCHELL. You would support the bill.

Mr. Storey, would you support the bill if we did that?

Mr. STOREY. Mr. Mitchell, I cannot answer that question yes. Since I work for an organization that is made up of 35 or 36 companies and once they took a look at your bill, if you did remove that, then they would certainly would make a decision as to whether to give it their total support. But I would be very honest with you, I would have to leave that open.

Senator MITCHELL. Yes. Of course, the 0.9 is a State choice. But would you consult with them and get back to me? You see, one of the problems I have had is that we have been at this for 7 years, and many people will say, "Well, we object to A." And I have said, "Okay, we'll take out A," and then they come back and say, "Well, no, we object to B." I say, "Well, okay, I'll take out B," and then they say, "No, we object to C." And when you get down to the end of the alphabet, they say, "Look, we're against any bill."

I guess I am just trying to find that out, and it's a fair comment that you make that you want to wait to check. I would appreciate if you would get back to me, though, because we do intend to mark this bill up. And if it makes a difference, I would consider changing the bill. But if someone is going to oppose the bill as vigorously whether something is in it or not, then of course there is less incentive on the part of myself or any other members of the committee to make any changes.

Do you get the point I am making?

Mr. **Storey**. Mr. Chairman, we will get back to you, and I want to say that I fully understand your comment and agree with it.

Senator **Mitchell**. Yes. OK. Thank you very much.

My time is nearly up; I have many other questions, but I will have to submit them in writing to the members of the panel—we will go to Senator Burdick.

I have to leave shortly. Senator Breaux or others will be chairing the hearing for a brief period of time.

Senator Burdick.

Senator **Burdick**. Thank you, Mr. Chairman.

Mr. Cranston, in your testimony you estimated that roughly 30,000 megawatts would be needed to be retrofitted to achieve a 10.2 million ton SO_2 reduction required by the various acid rain bills. Your estimate includes some fuel switching and plant retirements.

I would be interested to know if any of the members of your trade association have had any success in encouraging our neighbors to the north, the Canadians, in scrubbing any of their facilities?

Mr. **Cranston**. The comment that I can make is that Ontario Hydro, which is the first utility that I know of in Canada that has requested a study, some of our members, including the company that I work for, have submitted to them a proposal to them for a particular station in Canada. We do not know what the timing is. It is probably several years away. But it is a 2,000 megawatt station on the St. Clair River.

Senator **Burdick**. Well, I don't know of any now, do you?

Mr. **Cranston**. No, sir, there are none in Canada.

Senator **Burdick**. And you say some are planned 7 years from now?

Mr. **Cranston**. I don't know the timing.

Senator **Symms**. Excuse me. I couldn't hear you, Mr. Cranston. Did you say there are no plants in Canada that are being scrubbed?

Mr. **Cranston**. To my knowledge, there are no utility plants in Canada that are currently being scrubbed.

Senator **Symms**. Excuse me for interrupting.

Senator **Stafford**. Does that include smelters as well as utilities?

Mr. **Cranston**. I am sorry?

Senator **Stafford**. Does that include smelters as well as utilities?

Mr. **Cranston**. No, I said utilities. There are, on some of the smelters and other SO_2 emitters, there are pollution controls.

Senator **Burdick**. Is there any control on the Sudbury smelter?

Mr. **Cranston**. Sir, I am not familiar with that site.

Senator BURDICK. You have heard of the Sudbury site?

Mr. CRANSTON. I know of it, but I am not familiar with what pollution control equipment is on it.

Senator BURDICK. But on electric plants there are no scrubbers?

Mr. CRANSTON. That's correct.

Senator BURDICK. That's all.

Senator MITCHELL. Thank you, Mr. Chairman.

Senator Stafford.

Senator STAFFORD. Thank you, Mr. Chairman.

Mr. Ozkaynak, I would like to come back to your testimony, which I found very interesting. Chairman Mitchell has already discussed it briefly, but I should point out to you that there are those who are highly critical and suspicious of the types of studies which you have done. They believe that such studies fail to take into account important factors like smoking habits, workplace exposures and the like.

As a matter of fact, without naming names, one Federal official referred to air pollution health effects studies of your type as "half-baked epidemiology." I think it only fair, since you are one of the bakers being referred to, that you have a chance to comment on that characterization.

Mr. OZKAYNAK. Thank you very much for bringing that point out again.

I indirectly heard about those statements.

I guess, in defense of epidemiologic investigations, I just want to say a couple of remarks. The evidence that I alluded to in terms of a positive significant air pollution effect is not really derivable from one type of analysis. We are talking about different types of mortality studies that include data across the Nation, other studies that include long-term records from one particular location, for example, New York City, over a decade or more. And we have worked with data sets from Los Angeles, including day-to-day mortality for ten years, and many morbidity studies and so forth and other specialized studies that are performed in various parts of the United States.

In doing all these analyses, one obviously has to take extreme amount of care, making sure that all the confounding variables, the variables that may bias the results or cloud the interpretations are accounted for. You mentioned the most important one: smoking is an important one. Occupational variable is an important one. Migration is another important variable.

We proceed with extreme amount of caution and include those variables to the extent that we can include or find good measures for them.

Most of the efforts that we have done, including those variables, still point out to a positive significant air pollution effect.

The work that myself or my colleagues do, not only at Harvard but other institutions in the United States, go through various stages of peer review, both internal and external, and prior to journal publication.

In addition to that, the United States Environmental Protection Agency utilizes these data sets and subjects them to further peer review and critical assessments in developing their health assessment and criteria documents. To this date we have standards for particulates, SO_2, and also for lead and CO based on epidemiological studies and epidemiologic evidence. These are the most relevant studies that we can use in figuring out the health effects of a free-living population exposed to pollutant mixtures, unlike the animal experiments or controlled chamber studies which are more experimental and have limited insights into general population health effects.

Senator **Stafford**. Thank you very much.

I would like to turn now, in view of the brief time, to Mr. Bertelsen, because we learn something every day, and I may have learned something about catalytic converters I didn't know.

Where can you specifically cite a plant in Japan or Europe where catalytic converters have been used for reduction of NO_x? That would require a very large converter, I would think.

Mr. **Bertelsen**. Well, the technology is slightly different. It's not a bigger catalytic converter.

Senator **Stafford**. If you could describe the actual process for us at a specific plant, I think that would be helpful.

Mr. **Bertelsen**. I don't have with me the name of a specific plant. I would be happy to provide that to you in writing. I can tell you that in Japan there are a number of systems that have been equipped on powerplants. In Germany there are several sites where systems have been commissioned. A large number systems have been ordered, and in fact the rest of the entire sector of coal-fired utility boilers in Germany is on a schedule which is designed to bring them into compliance with very stringent standards.

I would be happy to submit to you and the other members of the committee specific examples of sites in Japan and Germany.

Senator **Stafford**. We would appreciate that. I think the committee would very much like to have it.

[The information requested follows:]

Supply Records of NSKK's De-NOx Catalyst

MAY.,1987

NIPPON SHOKUBAI KAGAKU KOGYO CO., LTD

(JAPAN)

The followings are major supply records of de-Nox catalyst by Nippon Shokubai since 1981

Table.1 Supply list of De-NOx catalyst
(For utility boilers)

Customer	Plant Site	Plant Output (MW)	Fuel
Kansai Electric Power Co.	Kasugade , No1,2 (Japan)	156 x 2	Oil
	Aioi , No2,3 (Japan)	375 x 2	Oil
	Himeji , No1 (Japan)	33	Coal
	Gobo , No1 (Japan)	600	Oil
Shikoku Electric Power Co.	Saijyo , No1,2 (Japan)	156, 250	Coal
Chugoku Electric Power Co.	Shin-onoda, No1 (Japan)	500	Coal
Chubu Electric Power Co.	Atsumi , No3,4 (Japan)	700 x 2	Oil
	Shin-nagoya, No3	220	Oil
Electric Power Development Co.	Takehara , No1 (Japan)	250	Coal

Senator STAFFORD. I will conclude with just a comment. That is that for years we have heard that some form of national cost sharing might be a way to approach putting the necessary equipment on utilities; that is, some kind of a small tax on consumers for the electricity produced by fossil fuel plants.

But I remember talking about that with some of the western governors like Governor Matheson, and it did not seem to make much of a hit with them. I don't know whether he would want to comment further or not. I think they would still feel that way.

Thank you, Mr. Chairman.

Senator BREAUX [presiding]. Thank you.

Senator Baucus.

Senator BAUCUS. Thank you, Mr. Chairman.

In listening to the testimony of each of the witnesses on this panel, I didn't hear anyone question whether emissions of nitrous oxides or SO_2 cause a chemical reaction in the upper atmosphere leading to acid rain, leading further to a detrimental effect on wildlife, on lakes, and forests. Rather, that issue seems to be settled, at last as I listened to this panel. The issue seems to be what do we do about it; that is, how we control emissions of nitrous oxides and SO_2.

The question that comes to my mind—and I am sure it comes to the minds of a lot of folks who really are experts in the technicalities of SO_2 and nitrous oxides—is really this: As I mentioned in my opening statement, a consortium of utilities in the west has built a couple of powerplants in Montana. They are each 750 megawatts, a total of 1,500 megawatts.

The total cost was about $1.2 billion. Of that, about 30 percent, up to 35 percent of the total cost was spent on environmental control—that is, thirty-five percent of the total operating capital cost out of $1.2 billion—for environmental control, the result of which is that the SO_2 emissions are 0.08 pounds per million Btu, which is 11 times more stringent than the 0.9 pounds which is the most stringent of the various bills that we are studying.

The very basic question, I think, in the minds of a lot of people then is, if those powerplants are constructed at that cost, and if that cost is then passed on to consumers, as it is, most consumers in my State of Montana are not squawking about it, why can't other plants be built to achieve at least the 0.9 pounds per million Btu SO_2 and maybe even much lower standards because it has happened in another State.

I know part of the answer is that we have low-sulfur coal. That is part of the answer. But if that is the answer, then the question obviously is why can't there be more low-sulfur coal used? It's not only western low-sulfur coal. There is low-sulfur coal in the east as well. There is a lot of low-sulfur coal in the east as well.

So my question is why, as just a basic nuts-and-bolts issue, why can't more utilities, more power plants, meet at least 0.9 pounds, maybe even down to 0.08 pounds, which is presently the standard met in Montana for 1,500 megawatts of production? Anybody like to take a crack at answering that one?

Mr. CRANSTON. I will just make this comment. There is no question that those limits can be met. There are in some of the studies that are currently going on by EPA some reasons why low-sulfur coal is not applicable to certain boilers.

Senator BAUCUS. In order to answer the question, it's not only low-sulfur coal. I mean, you could wash the coal. There are all kinds of technologies that in combination, one would think, would allow a utility to reach a much tighter standard.

Mr. CRANSTON. To answer your question, though, those limits can be met.

Senator STAFFORD. I'm sorry?

Mr. CRANSTON. Those limits can be met.

Senator BAUCUS. Thank you.

Mr. GIBBS. Senator, I would just like to comment.

I would just like to comment that the most cost-effective way to get immediate help on SO_2 reduction is the use of low-sulfur coal because that can be done just by fuel switching.

The problem with 0.9 as a standard for a specific plant is that there are very few coals, low-sulfur coals, that can meet that standard without extensive scrubbing, thereby you would have to have a low-sulfur coal and a scrubber in most cases to meet that standard.

I know of only about four mines that are capable of meeting 0.7, and I know it's very difficult for mines to meet or powerplants to buy low-sulfur coal that can meet 1.2. Now, I don't have the specific tonnage of coals that can meet 0.9. I know it's very, very low.

Senator BAUCUS. Well, that may be. Correct me if I am wrong, Mr. Gibbs, but I understand that the average low-sulfur coal, let's say, it's, what, about maybe one pound?

Mr. GIBBS. Oh, I would say it's probably higher than that.

Senator BAUCUS. Well, it's my understanding that high-sulfur coal is more in the neighborhood of 8 pounds.

Mr. GIBBS. Eight pounds. Right.

Senator BAUCUS. Eight pounds per million Btu. Low-sulfur on the average is closer to one pound.

Mr. GIBBS. Closer to one. That's correct, yes.

Senator BAUCUS. So there is a very major difference between high-sulfur coal and low-sulfur coal.

Mr. GIBBS. Yes.

Senator BAUCUS. The point being that if low-sulfur coal is used, one pound is pretty close to 0.9.

Mr. GIBBS. Yes.

Senator BAUCUS. A lot closer than 8 pounds is to 0.9.

Mr. GIBBS. Yes. I think if you did have a plant standard of 0.9, though, you would, in effect, in order to be able to have a choice of fuels, you would really be required to scrub.

Senator BAUCUS. One quick question. What can we learn that is most important from other countries? We have already heard testimony about catalytic converters. Would any of you volunteer as to what we can learn from other countries who are utilizing either stationary or mobile SO_2 and nitrous oxide technologies that would have some bearing here?

Mr. CRANSTON. I will answer that this way. The philosophy in both Japan and in West Germany has been to use less equipment than we have used in this country for SO_2 removal. There is less redundancy in the equipment. Therefore, the equipment costs less and is less to maintain.

Some studies again are going on at EPA about what the reduction in the capital cost is, and it's approximately 20 to 25 percent.

We as an industry believe that the reliability of our systems has been improved to the point where some of that redundancy could be taken out. And in some of the figures that we have used, we have reduced the amount of redundant equipment to come to the same conclusion.

The second point is that some of the newer technology that our industry has been using is capable of reducing the SO_2 to an extent between 95 and 100 percent, and that also reduces the cost of the plant considerably, without going into those details.

Senator **BAUCUS**. Thank you. My time is up. Thank you, Mr. Chairman.

Senator **BREAUX**. Let me ask, Senator Symms, do you have any questions for Dr. Ozkaynak, because he has a plane that he is trying to catch.

Senator **SYMMS**. No. Thank you very much.

Senator **BREAUX**. We can then excuse him. We may have some questions that we will submit for the record.

Senator **BAUCUS**. I have one quick question: the degree to which that 3 to 5 percent is attributable to nitrous oxides or sulfur dioxide, acid rain-associated pollutants?

Mr. **OZKAYNAK**. It is often difficult to separate the effects of pollutant mixtures. The most systematic evidence we have seen so far has been with fine particles and sulfates. Total suspended particles and sulfur dioxide in combination have been shown in many studies contributing to mortality or morbidity, but it is not that easy to separate quantitatively how much of that effect is due to SO_2.

We have some preliminary evidence from our analysis of the Los Angeles mortality data that NO_2 might be playing a role in the excess mortality. But at this time we don't have the full confidence to say how much that contribution is. So we are still baking our assessments, so to speak.

Senator **BAUCUS**. OK. Thank you.

Senator **BREAUX**. Thank you, Doctor. You are excused.

Mr. **OZKAYNAK**. Thank you very much.

Senator **BAUCUS**. It will soon be full-baked.

Mr. **OZKAYNAK**. When it is full-baked, I will be here.

Senator **BAUCUS**. Very good.

Senator **BREAUX**. We will recognize Senator Symms for questions.

Senator **SYMMS**. Thank you very much, Mr. Chairman.

This has been a very interesting panel. I thank all of you who have been here.

Mr. Cranston, in your answer to Senator Burdick, if I heard you correctly, you stated that the Canadians, to your knowledge, have not been making the same effort to scrub coal that we have here, for example, most recently the consortium in Montana that Senator Baucus mentioned. Is that correct?

Mr. **CRANSTON**. The question I was asked was are there any SO_2 scrubbers operating on utilities in Canada. My understanding is there are none.

Senator **SYMMS**. Governor Matheson, wouldn't that put your Western Energy Supply and Transmission people at a tremendous cost disadvantage with the Canadians if we pass a law here and we do all the cleanup and they don't?

Mr. MATHESON. Pardon me, Senator?

Senator SYMMS. I said wouldn't that put us at a competitive disadvantage if the Canadians aren't cleaning up and then we pass some law and then the businesses that you represent are at a big disadvantage? Correct?

Mr. MATHESON. There is no question about that. The interesting thing, Senator, is that since the 1976 amendment to the Clean Air Act, which was referred in other testimony about being a marketing tool, that has precipitated the placing of scrubbers on all of the construction out in the west since that was passed. In my testimony today I indicated there is only about one percent of the powerplants in the west that would fall within the 30-year provision of the chairman's S. 321, and that is only about 600 megawatts of power which would be affected by that particular 30-year deadline.

So the west has now pretty much reinvested the capital dollars into scrubbers, and I think we got a percentage up here of 35 percent up in Montana. We, just incidentally, this last week had the final ceremony opening up our new coal-fired powerplant down at Delta, 1,500 megawatts. Interestingly enough, the investment for the pollution controls was somewhere between 35 and 40 percent.

Senator SYMMS. So, about a third of the cost then?

Mr. MATHESON. Yes.

Senator SYMMS. Would you want to comment on that, Mr. Gibbs?

Mr. GIBBS. I think that is about correct. I am personally familiar with the Bridger powerplant at Pacific Power and Light in Wyoming that we supply coal to, and they are in the process of retrofitting 500 megawatt. They have four 500-megawatt units, and I have been told those are costing about $100 million apiece. Now, those powerplants were built some few years ago, some 8 to 10 years ago. So I am not sure that the percentage would apply, but it is a lot of money that is required.

Senator SYMMS. I might just comment that we used to be able to say that we contributed a little bit to the SO_2 in my State, but the nonferrous smelters have been run out of business by the Government and the international unions, a combination of those two things and a few other things. Those plants are all closed now, and I guess the environment looks good but people have to go elsewhere to work. Sometimes I wonder.

This appears to me that if we don't do this correctly in the Congress, that this could end up being a $100 billion crapshoot and not have any impact on acid rain. I don't know why we have as much in the Olympic Forest as they have in New Hampshire, but that tells me that it's not coming out of the west and midwest. Maybe it's coming from Japan or Mexico or some volcano, I am not certain. But I think there are answers to this. I am not downplaying that it is a problem.

Do any of you have any experience with liming of lakes?

Mr. HAWKINS. Our experience with reading reports of those who have tried, and it is very much a bandaid that can be used at fairly large cost.

Senator SYMMS. Is it very costly?

Mr. **Hawkins**. It is costly in terms of the benefits you get. It requires a bureaucracy to do it. It requires access to the lakes. It requires constant maintenance. For many aquatic ecosystems, it would be the equivalent of having the pool man come to call every so often. You don't maintain it, the lake turns over and you wind up with a totally——

Senator **Symms**. Well, if we can't solve the problem, we may be forced to do something in that respect; isn't that correct?

Mr. **Hawkins**. I think that would be a fundamental mistake. The only countries that have tried that seriously are the victim countries that don't have the power to solve their own problems, such as Scandinavia, because even if they eliminated their emissions, their lakes would still be polluted. So they do it as a last resort.

We don't have to resort to that. We have the technical know-how to solve the problem directly by keeping the stuff out of the air.

Senator **Symms**. What do you recommend we do about the Canadians? If we are going to do this, as far as I am concerned the Canadians ought to go along and do the same thing.

Mr. **Hawkins**. Well, I don't want to be seen as an advocate for the Canadians. I would make a couple of points. The first is that I also do not know of any scrubbers on utility plants in Canada. Utility plants in Canada are about eighteen percent of their sulfur dioxide emissions contrasting to about 70 percent of ours. Most of their sulfur emissions come out of smelters, and they have put controls on their smelters.

Senator **Symms**. Would you favor replacing that 70 percent with some more nuclear powerplants?

Mr. **Hawkins**. In our view, nuclear power should compete if it is competitively economically and from a standpoint of safety.

Senator **Symms**. Well, if we put enough laws on it, it will be competitive, put enough laws on the coal.

Mr. **Hawkins**. Well, I don't believe that is anyone's objective in trying to get acid rain controls on fossil-fueled powerplants. It is certainly not our objective.

Senator **Symms**. All right. Thank you.

Thank you, Mr. Chairman.

Senator **Symms**. Thank you all very much for being here.

Senator **Breaux**. I have just a couple of questions.

Mr. Hawkins, a witness to follow, and in fact Dr. Ozkaynak had said in his statement in talking about what has happened, whether things are getting better or whether they're getting worse, Dr. Ozkaynak had indicated that over the last decade emission controls and the relocation of facilities and changes in the available fuel have gradually reduced the TSP levels and decreased the sootiness of aerosols in most urban areas in the United States.

The National Coal Association, which is going to be on the next panel, whose statement is addressing the question of whether things are getting better or not, say that SO_2 emissions from coal-fired powerplants declined from 15.67 million tons in 1985 to 15.22 million tons in 1986. The decline continues the trend in effect since 1973. They will testify that emissions from the regions that are bordering Canada from North Dakota to Maine were 880,000 tons lower in 1986 than they were in 1980. They further will testify that their study that they did shows that SO_2 emissions had declined by

2.6 percent over the period 1980 to 1985, despite a 23-percent increase in coal use by utilities. Their statement is generally along those lines.

Your statement is to the effect that NCA is wrong in trying to paint the picture of steadily declining emissions. You have no real confidence that the 1986 emissions are in fact 6-percent less than the 1980 emissions, for the simple reason that our emission estimating procedures are too crude to permit calculations with such precision.

It is a basic problem presented to the committee. One side is saying, "Look, things are getting better. The Clean Air Act is working. Changes in fuel use are all restricted and reducing the SO_2 emissions." You are saying you don't have enough confidence, I guess, in the figures to really agree with that.

Give us a little bit more elaboration on that. They're going to tell us one thing, your position is entirely the opposite. Much of this legislation depends on who we believe.

Mr. HAWKINS. Well, yes, Senator, I will try. There are certain facts about which there is no confusion. We know roughly what utility emissions were in 1950. They were roughly 4 to 5 million tons. We know quite closely what they were in 1980; they were about 17 million tons.

Senator BREAUX. How would that compare per plant, because I would imagine that we had a lot more plants in 1980 than we did in 1950, would we not?

Mr. HAWKINS. Yes, we do have more plants. But of course, the environment cares about the total loadings that it is seeing, and there has been this fourfold increase. It is not as though the utility industry has gone out and tried to dirty up its plants. This is not a question of evil mentality, it's a question of the byproducts of our technological civilization, and we have had an increase in sulfur dioxide emissions over that 35-year period that is approximately fourfold.

No one will dispute that there has some small reported reduction in emissions over the last 6 years. To make a big deal out of it, my point is, is mistaken because it is arguing within the noise of error in the measurement system. To make a big deal out of it is also mistaken because it is a slight decrease on top of a fourfold increase.

Senator BREAUX. Let me ask you to address this problem then. If the measuring system is that inaccurate then, what kind of faith are we going to have on these 0.8 and 0.09 and 1.2 and all these other very precise figures that I hear being tossed around as standards that are going to have to be met? If the margin of error is 13 percent and we're talking about a 0.8, how are we going to have any faith in any of this?

Mr. HAWKINS. Well, we believe that a very simple solution to that is to require emission monitoring on those plants. Emission monitors are proven, they are available, and they could be applied. But they aren't, because they haven't been required as a matter of regulation on most coal-fired power plants. But that is a simple solution. Our measurements would be much more accurate if we actually measured the emissions, but we don't do that as a general rule.

Senator **Breaux**. I note that the Coal Association says that the efficacy of the Clean Air Act has been consistently underestimated. That is really interesting because I remember in 1977 I don't think NCA was really supportive of the Clean Air Act.

That is a heck of an admission in 1987 that, "Man, it's really working."

I don't remember that in 1977.

Well, I appreciate your comments. The problem we have is in trying to determine whether we're getting better or we're getting worse. That is a key question, and if we don't have faith in the statistics, how are we going to meet these very finite standards that the legislation is calling for. It's a real problem.

I thank all the members of the panel. I think it has been very helpful. The discussion has been good.

The chairman has indicated there will be additional questions which we would submit and ask people to respond.

With that, this panel will be excused.

We would like to welcome up the second panel, consisting of: Mr. A. Denny Ellerman, executive vice president of the National Coal Association; Mr. Michael Oppenheimer, with the National Clean Air Coalition; Mr. John A. Knebel, who is president of the American Mining Congress; Mr. James B. Hermiller, vice president of refining for Sohio; Mr. Lauren Laabs, who is manager of environmental affairs for the A. E. Staley Manufacturing Company.

Let's see if we can do the exchange in a little bit of silence, please.

Finally, Mr. Peter Aylen, who is vice president of Alumax Primary Aluminum Corporation.

Gentlemen, we welcome all of you. We are pleased to receive your testimony. You heard the instructions from the chairman. We wish that you would also attempt to follow those same instructions with regard to summarizing the testimony.

Mr. Ellerman, we have you listed first.

Let's see if we can get some quiet in the back before we start, please.

Mr. Ellerman, we have you listed first. We are pleased to receive your testimony.

STATEMENT OF A. DENNY ELLERMAN, EXECUTIVE VICE PRESIDENT, NATIONAL COAL ASSOCIATION, WASHINGTON, DC

Mr. **Ellerman**. Thank you, Mr. Chairman. I am pleased to be here, and I will not disappoint you and will address the issue of SO_2 emission trends.

I am Denny Ellerman, executive vice president of the National Coal Association, recently merged with the Mining and Reclamation Council of America. We represent coal producers both large and small, east and west, who produce both low- and high-sulfur coal. Our membership consists of about sixty percent of the national production.

The position of the National Coal Association on acid rain controls is well known to this committee and in that regard we find that S. 321, S. 320, and S. 316 all fit the description as acid rain control bills, and we are equally opposed to all of them.

I might also note that the recently introduced S. 1351, the Clean Air Standards Attainment Act, contains provisions in Title III which would require the promulgation of a one-hour standard for SO_2, which if it were promulgated at levels which are discussed by some parties, would have an effect equivalent to an acid rain control bill.

I will limit my oral remarks to the trend in SO_2 emissions from coal-fired powerplants in which, as it has been recognized, we have developed some expertise and have contributed something original to the debate.

Among the hardiest perennials in forecasting has been the forecast of rising emissions, particularly from SO_2 from coal-fired powerplants, and these forecasts always seem to be coupled with calls for legislative action to forestall the anticipated increase of emissions and what are believed to be the effects from such an increase.

I must confess that earlier we had almost come to believe these projections, until we started looking at the data. What we found was that the reduction of SO_2 emissions, well recognized during the 1970's, had not ceased in the early 1980's, as had been almost unanimously forecasted prior to that time.

As of the last year for which data can be collected, we have achieved a nearly 1-million-ton reduction in the 6 years since 1980. That has been despite the 22 percent increase in coal use by electric utility powerplants. And most remarkably, about two-thirds of that reduction has come from non-NSPS plants, those from which, in the forecasts of rising emissions, it had been assumed that no further reductions could be expected because by and large they were in compliance with the SIP limits under the Clean Air Act.

Those further reductions took place because of the effects of the shift in economic activity and demand for electricity from regions of the country which had higher emissions to those which had lower emissions, due to the substitution of low-sulfur coals in powerplants across the country, and to the retrofitting of new technologies, particularly scrubbers, on existing non-NSPS plants.

Our analysis has convinced us that the decline in emissions will continue into the 1990's. The factors causing the decline in average emission rates will continue. And in the late 1980's there will be little growth in coal demand as distinct from the early 1980's, when there was a rather rapid increase.

The combination of continuing decline in the rate of emissions per unit of input or per ton of coal burned, plus the small increase in coal demand, will mean that we will see sharper declines in SO_2 emissions in the late 1980's than what we witnessed in the early 1980's. In fact, the 1986 data confirm that. In 1986, we saw a nearly half-million-ton reduction that was equal to the reduction of SO_2 emissions that occurred in the first 5 years of this decade.

The Environmental Protection Agency has acknowledged the accuracy of our estimates, although they have only gone up through 1985. They disagree with respect to the forecast of what will be the future trend of emissions, and we continue to disagree on that point.

However, I must say they are getting better. In their latest update of emission trends, they have of course recognized that 1985 was lower than 1980 despite their earlier forecasts. But more importantly, with respect to 1990, they have knocked off 2.0 to 2.5 million tons off their 1990 forecast, although they are still too high, in our estimation. To reach their point or their estimate for 1990 would assume a rapid increase in SO_2 emissions over the next four years, and it won't happen, for the same reasons that the emissions declined during the first half of the 1980's.

Now, I am aware that the argument about SO_2 emissions is not the entirety of the arguments to be dealt with with respect to acid rain controls. However, it is an important element, and I would urge you to recognize, as has been stated in our testimony, that the Clean Air Act continues to be effective, that emissions, SO_2 emissions, are continuing to decline and that they will continue to decline into the 1990's. Thank you.

Senator **Breaux**. Thank you, Mr. Ellerman.

Mr. Oppenheimer.

STATEMENT OF MICHAEL OPPENHEIMER, NATIONAL CLEAN AIR COALITION, WASHINGTON, DC

Mr. **Oppenheimer**. Thank you, Mr. Chairman, for this opportunity to testify. My name is Michael Oppenheimer. I am a senior scientist at the Environmental Defense Fund. I am an atmospheric physicist, and I am testifying on behalf of my own organization and the National Clean Air Coalition. I have submitted complete testimony to the record and will summarize briefly.

Acid deposition is causing broader damage to the environment than any other environmental problem. The failure of the Federal Government to develop a comprehensive policy for the reduction of the emissions of sulfur dioxide and nitrogen oxides which cause acid rain has led to the sacrifice of natural resources and a continuing threat to human health.

In contrast to this policy vacuum at the Federal level, we find increasing efforts at the State level, in Canada, and in Europe to control these pollutant emissions in order to reduce acid deposition. The time for action at the Federal level is long overdue. Therefore, the Coalition and EDF support legislation S. 321 and S. 300 aimed at controlling acid pollutants and sharply reducing acid deposition.

The scientific case for reducing acid emissions was documented in a 1981 report published by the National Academy of Sciences. Although much research and analysis has occurred over the last 6 years, the basic scientific picture constructed by the academy panel remains intact, and its central recommendation remains pertinent,

> The control of emissions of sulfur and nitrogen oxides from fossil fuels is necessary to halt the acidification of sensitive aquatic systems.

Knowledge gained over the last 6 years has served to strongly reinforce this recommendation. I point in particular to the 1986 Academy report establishing in detail the links in a cause-and-effect chain connecting sulfur dioxide emissions at one end to the disappearance of fish populations at the other.

My testimony lists in detail eleven points of new scientific findings over just the last couple of years strengthening the case for reducing acid rain.

I would point in particular to the Schindler study, which indicates that the aquatic food chain is disrupted when aquatic pH's fall only to six, which is well above the point where a lake is considered totally acidified. I would also point to the "Characteristics of Lakes in the Eastern United States," a 1986 EPA study, which indicates that perhaps 3,000 lakes have had their aquatic chemistry altered by acid deposition.

Rather than go through an enumeration of these points, however, I would like to take this opportunity to address certain of the questions raised over the last hour and a half by other witnesses. One question raised by the chairman was "is the situation getting better or worse?" If you take on face value the rate at which emissions are decreasing, according to Mr. Ellerman, they would be changing at about one percent a year. We have more than two, and perhaps three, times too much sulfur going into the environment. At the rate of 1 percent per year, the acid rain problem would solve itself sometime in the twenty-second century. We are not prepared to wait that long for a solution.

With regard to the actions of the Canadians, it is worth noting that the Province of Ontario has committed itself to a two-thirds' reduction in sulfur dioxide emissions over the next 7 years, some of that from smelters and some from electric power plants.

With regard to liming, it is worth noting that liming is not only just a bandaid approach, as mentioned earlier, but actually can be detrimental to ecosystems by precipitating toxic metals at the bottoms of lakes.

With the information summarized here at hand, six States, Canada, several European Nations, and even Mexico have acted to stem acid rain. Details are in my testimony.

Against that background of international efforts to deal with the problem, the U.S. Government remains figuratively an outlaw, guilty of negligence towards the environment. It is certainly high time for this indifference to end. Thank you.

Senator **Breaux**. Thank you very much, Mr. Oppenheimer.

Next we will hear from Mr. John Knebel.

Mr. Knebel.

STATEMENT OF JOHN A. KNEBEL, PRESIDENT, AMERICAN MINING CONGRESS, WASHINGTON, DC

Mr. **Knebel**. Senator Breaux, Senator Symms, I am John Knebel. I am president of the American Mining Congress, a broad-based trade association representing the Nation's mining and minerals processing industries, including producers of coal, metals, agricultural, and industrial minerals. It also represents manufacturers of mine equipment and financial and engineering firms that serve the mining industry. I thank you for the opportunity to testify on the acid rain issue.

The acid rain bills now being considered by the Congress transcend environmental issues. They are in fact statements of national industrial policy, and they need to be recognized and appreciated as such. These bills are statements of industrial policy because acid rain legislation, in whatever form, will result in significant added expenditures to American industry, including substantial new costs for emission controls and process changes and in the delivered price of electricity.

While the direct cost to utilities for required sulfur dioxide reduction from even the lowest-cost bill would be staggering, such costs cannot be considered the only economic consequences of acid rain legislation. The costs that really count—namely, the increased price of U.S. goods and the loss of our international competitiveness—have not been fully examined by the Congress.

Failure to consider these legislative proposals from this broader perspective will contribute, we fear, to a further flight of industrial operations and jobs and thus to an accelerated erosion of the Nation's mining, industrial, and tax base.

Such an erosion of our industrial base must eventually lead to a significant lowering of this country's standard of living. Indeed, a decline has already begun. In constant dollars, average weekly income in 1986 was $171, down from $187 in 1970. This is a decline of 9 percent, while in the same period prices have increased nearly 200 percent based on the Consumer Price Index.

It is not by happenstance that the pressure for protectionist legislation has increased steadily over the last several years or that national competitiveness has become the focus of much discussion here in the Congress. The rise of these issues results from a significantly changed economic landscape from that which existed 15 years ago, and we in this country must face up to this change if we are to maintain the prosperity that we have taken for granted since the end of World War II.

In 1970, when the Clean Air Act was first enacted, there were, as there had been since 1945, effectively two marketplaces in the world: the United States and everyone else. With increasing speed, the world has changed into a single global economy, and as a result, we can no longer afford business as usual. American industry, if it is to survive in the changed world, must compete both at home and abroad more vigorously than ever before.

The American Mining Congress very much supports such competition. It assures that American consumers will be offered products at the best possible price. However, we also understand that this adjustment to a more competitive world is not easy. Our knowledge has come as a result of the major restructuring undertaken by the domestic mining industry to become more efficient.

Since 1980, employment in metal mining has declined by 56 percent and employment in nonmetal mining has declined by fifteen percent. In 1986, imports of nonfuel minerals exceeded exports by $15 billion, a 66 percent increase over 1981.

However painful these statistics are, they have caused the mining industry to adjust. During the last ten years productivity has risen dramatically in our industry. Output per employee hour in coal is up 50 percent, in iron 80 percent, and in copper, lead, and zinc it is up 100 percent.

It is not just industry and workers who must face up to this change in formulating public policy on environmental and other issues. The Government, including the Congress, should take into account this new economic reality. As a Nation, we simply cannot afford the luxury of ignoring the costs of legislation and regulatory programs on the assumption that such costs, no matter how large, can be passed on to consumers. This assumption is no longer true, if indeed it ever was.

Regulated industries may be able to pass on their costs, but for their industrial customers who operate in today's highly competitive, global marketplace, regulatory costs cannot be passed on without jeopardizing their competitive position. This is true for the mining industry, which has already been forced to absorb high regulatory costs or face closings.

Since 1981, for example, production capacity has declined by about one-quarter in copper and over a third in zinc. This is why the acid rain bills are so frightening to the mining industry. They threaten to undo all the productivity and competitiveness gains which we have made with the help of our workers over the last 10 years.

If American industries, including the mining industry, are to compete, all increased costs, including new regulatory costs, must be kept to a minimum and must be absolutely necessary. If there were evidence that the continent faced an ecological emergency, the precipitous actions called for in these bills might be justified.

In addition to all I have said with respect to the costs, EPA Administrator Thomas has testified before you recently that the evidence does not remotely suggest the appearance of such an emergency.

We challenge you to look at the acid rain proposals from a new perspective. Congressional initiatives such as the Clean Air Act have required industries to view their operations from the perspective of environmental effects and to consider those effects in industrial decisionmaking. In doing so, Congress rightly corrected an imbalance in past thinking that could no longer be tolerated if we were to pass a livable, enjoyable environment to our children.

However, times have changed since the Clean Air Act was passed. The Congress, the public, and the environmentalists must understand that in today's more competitive world, the costs of environmental programs must also be considered when legislative and regulatory decisions are made. If this course of action is not followed, the economic legacy which we will leave our children will be far less than we have enjoyed.

In short, the acid rain bills S. 300, S. 316, and S. 321 which you are now considering fail to take the economic reality of today into account, and for this reason should be rejected.

We thank you, Senator, for the opportunity to appear.

Senator **Breaux**. Thank you, Mr. Knebel.

Next we will hear from Mr. Hermiller.

Mr. Hermiller.

STATEMENT OF JAMES B. HERMILLER, VICE PRESIDENT, REFINING, THE STANDARD OIL CO., CLEVELAND, OH

Mr. **Hermiller**. Mr. Chairman, my name is James Hermiller. I am Vice President, Refining for The Standard Oil Company, a major producer, refiner, and marketer of petroleum products. I appreciate the opportunity to present our views on the diesel fuel desulfurization provisions contained in acid rain legislation pending before the Subcommittee.

My testimony will demonstrate that for environmental, economic, and technical reasons, a reduction in the sulfur level of diesel fuel should not be a part of any acid rain legislation.

Our opinion is that the scientific evidence does not justify enactment of acid rain legislation at this time. While we support accelerated research into the causes and effects of acid rain and the continued development of clean-coal technologies, we are opposed to legislation which would require a major new regulatory program.

Standard Oil agrees with EPA's assessment of the current state of knowledge and urges Congress not to enact acid rain legislation at this time.

Of concern to Standard Oil is the requirement to further lower the sulfur content of diesel fuel after a certain date, of no more than 0.05 weight percent sulfur.

There are four reasons why restrictions on diesel fuel sulfur levels should be deleted:

One, the proposed requirements would have virtually no positive impact on reducing acidic deposition;

Two, the EPA already has the authority to require such sulfur reductions if necessary to control diesel particulate emissions;

Three, significant new costs would be added to the consumer price of diesel fuel;

And finally, the restrictions cannot be accomplished within the time frames proposed.

Sulfur is a naturally occurring component of crude oil. The Petroleum refining process results in the capture, on average, of over half the sulfur contained in the crude oil, and diesel fuel has seventy percent less sulfur than the average crude oil processed in U.S. refineries. The average sulfur content of diesel fuel sold in the U.S. in 1986 was 0.26 weight percent sulfur.

Diesel fuel combustion contributes only 1 percent of the Nation's sulfur dioxide emissions (SO_2).

In terms of SO_2 emission rates, diesel fuel is also a minor source. Combustion of diesel fuel results in less than three-tenths of a pound of SO_2 per million Btu, which is already much less than the rate allowed for stationary sources in S. 321, which would limit stationary source emissions to nine-tenths pounds SO_2 per million Btu. Therefore, mandating a 0.05 percent diesel fuel sulfur level would widen this disparity even further.

A study by TRC Consultants concluded that further sulfur diesel fuel restrictions will have little, if any, impact on acidic deposition at sensitive receptor areas. While diesel fuel combustion contributes only about 1 percent of the Nation's annual sulfur dioxide emissions, as previously noted, it contributes much less, only 0.27 percent of the sulfate deposition at the Adirondack Mountains.

Under section 211 of the Clean Air Act, EPA has authority to adopt a diesel fuel sulfur limit if it is found to be needed.

Since EPA can regulate the quality of the fuel to facilitate the operation of the emission control system, the diesel desulfurization provision in the pending acid rain legislation is duplicative of EPA's present authority and should be deleted.

It has not been shown that lower sulfur diesel fuel levels are needed to meet the EPA standards for heavy-duty diesel trucks and buses. EPA is now assessing the capability of heavy-duty engines to meet their 1991 and 1994 particulate standards and whether there is a need for a reduction in sulfur diesel fuel below current levels.

The cost of further diesel fuel desulfurization is very high on both the U.S. refining industry and the consumer. According to the American Petroleum Institute, lower sulfur levels would likely require over $3 billion in capital investment for U.S. refiners and another $1.2 billion in annual operating costs. This could raise the cost for diesel fuel as much as eight cents per gallon. For the average independent trucker, annual operating cost increases would be at least $1,000, and for U.S. farmers an increase of over $160 million annually.

In view of the high economic impacts in relation to the de minimis acidic deposition benefits noted previously, we fail to believe these costs are justified.

These costs to the oil industry would occur at the same time we and the industry are faced with costly new requirements for hazardous waste handling, possible restrictions on gasoline volatility, and other environmental controls.

A requirement for U.S. refiners to meet stringent low-sulfur diesel fuel specifications as early as June 1, 1988, would not allow sufficient time for the design, permitting, and construction of needed desulfurization facilities, which would probably take nearly four years.

In view of the above, it is the position of The Standard Oil Company that acid rain legislation is not warranted at this time and that a diesel fuel desulfurization requirement is particularly inappropriate in any such legislation. Thank you very much.

Senator **Breaux**. Thank you, Mr. Hermiller.

Next we have Mr. Laabs.

Mr. Laabs.

STATEMENT OF LAUREN W. LAABS, MANAGER OF ENVIRONMENTAL AFFAIRS, A.E. STALEY MANUFACTURING CO., DECATUR, IL; REPRESENTING COUNCIL OF INDUSTRIAL BOILER OWNERS

Mr. **Laabs**. Thank you, Senator Breaux. I am Lauren Laabs, manager of environmental affairs for A. E. Staley Manufacturing Company, speaking today on behalf of the Council of Industrial Boiler Owners, known as CIBO. I appreciate this opportunity to present CIBO's views on the acid rain control proposals currently being considered by this committee. CIBO is a broad-based association of industrial boiler operators and related equipment manufacturers, with 50 members representing 19 major industrial sectors. CIBO was formed in 1978 to promote the maximum exchange of information between industry and Government relating to energy and environmental policies, laws, and regulations affecting industrial boilers.

CIBO has a longstanding interest in the development of reasonable, cost-effective regulation of the industrial boiler air emissions. Because additional legislative emission control measures will have a major financial impact on its members, and in fact on most U.S. manufacturers, CIBO has participated in the acid rain debate for several years. During that same period we also cooperated extensively with the national acid precipitation assessment program, principally working in the areas of control technologies and manmade sources.

CIBO believes that the present vigorous program of investigation should be continued into the root causes of acid deposition and at the same time closely monitoring development of the many emerging control technologies which could be deployed on a cost-effective basis when the need for further control is clearly demonstrated.

Additional legislative control measures should be held in abeyance until these programs more clearly define the direction our country should be taking. Nationwide emissions of SO_2 have dramatically declined over the last decade and are likely to continue to decline under existing law.

Several studies have noted the decline of SO_2 emissions from industrial sources. For example, the report of the special envoys on acid rain states that such emissions were down 46 percent from 1973 through 1983.

The steady decline in SO_2 emissions is further confirmed by EPA in its national air pollutant emissions estimates for 1940 to 1983, stating that SO_2 emissions from industrial source fuel combustion declined from 4.5 million tons in 1970 to less than 2.3 million tons in 1983. That is a reduction of 49 percent.

The causes of this downward trend are several. First, due in large part to dramatic energy conservation measures undertaken by industry in the last decade, total industrial energy consumption has actually declined by 7.5 percent from 1972 to 1984, according to the Energy Information Administration. With this improved energy efficiency, many companies no longer need to expand their industrial steam-generating base.

Accordingly, approximately 80 percent of new industrial boiler installations serve to replace older, dirtier, less efficient units. The boiler replacement process by itself is resulting in significant SO_2 emission reductions.

In addition, data from the American Boiler Manufacturers Association shows that 44 percent of all industrial boilers sold in the 1984 and 1985 period were designed to burn waste fuels or utilize waste heat. In the majority of cases, these new units will burn fuels of very low sulfur content and produce low-NO_x emissions.

Moreover, new low-polluting solid-fuel combustion technologies are being installed by industry at a rapid rate.

Finally, various provisions of the Clean Air Act are working to limit SO_2 and NO_x emissions. For example, new-source performance standards issued under section 111 of the act governing SO_2 and NO_x emissions from new utility and industrial boilers have been in place since 1971.

These standards, which were revised for utility boilers in 1977, will continue to have a positive impact in the future.

CIBO believes that the foregoing rationale is even more compelling in view of today's international marketplace and the need for U.S. industry to enhance its competitive posture in these world markets. In this vein, we would like to examine the direct control compliance costs for industrial boiler owners to meet the requirements of the various bills now before the subcommittee.

First, considering direct industrial boiler costs for SO_2 controls, of particular concern to CIBO is the fact that although SO_2 emissions from industrial boilers constitute only about ten percent of all stationary-source SO_2 emissions, the legislative proposals for a limit of 1.2 pounds per million Btu would impose exorbitant costs upon these relatively small sources of nearly $1.5 billion per year. Legislative proposals which would restrict emissions to 0.9 pounds per million Btu would escalate those costs to nearly $2 billion per year.

The four bills currently under consideration call for SO_2 emission limitations ranging from 0.9 to 1.5 pounds per million Btu. Using the median 1.2 pound criterion, we have calculated State by State the national costs, which are included in my written text. Nationally those totals will be nearly $1.5 billion a year and an average of $1,260 per ton of SO_2 removed.

These costs are for direct costs of SO_2 removal only. Costs for control of nitrous oxides, or NO_x, are much more difficult to determine, since industrial experience, even with the system closest to commercialization is very limited. With the systems required by the Stafford bill, in fact, we consider them nonexistent.

Briefly, though, we expect that fuel cost increases would be at least ten percent due to low-NO_x burners if applied, and using the SCR, or catalytic reduction, fuel costs could be easily tripled.

Without even considering the scientific uncertainties regarding the relative causes of acid deposition, CIBO believes that further development of more advanced, cost-effective SO_2 and NO_x control technologies must be carried out before additional control measures are imposed.

This is especially true given the current state of rapidly evolving SO_2 and NO_x emission control systems and our conviction that time will allow commercial demonstration of processes and their development on a more rational, phased timetable with consequent less damage to the competitiveness of U.S. basic industry.

It has been our role to bring direct industrial boiler emission compliance costs to the committee's attention. We would point out, however, that these are in addition to the costs U.S. manufacturing will bear because of increased electricity costs which in the aggregate may well exceed the costs we have just enumerated.

We thank the subcommittee for the opportunity to present our views on this important issue.

Senator **Breaux**. Thank you very much, Mr. Laabs.

Next we have Mr. Aylen.

Mr. Aylen.

STATEMENT OF PETER AYLEN, VICE PRESIDENT, ALUMAX PRIMARY ALUMINUM CORP., BUCKEYSTOWN, MD; REPRESENTING THE ALUMINUM ASSOCIATION

Mr. **Aylen**. Thank you, Mr. Chairman. My name is Peter Aylen. I am vice president of Alumax Primary Aluminum Corporation. I am appearing today on behalf of the Aluminum Association.

The association appears today in opposition to the acid rain bills under consideration. As written, these bills would place an unfair and heavy burden on the U.S. primary aluminum industry.

Our industry operates in a highly competitive world market, made more difficult because we pay among the highest electricity rates in the world. We are far more economically vulnerable than most to electricity price increases because we consume large quantities of electricity in the production of primary aluminum. Electricity accounts for one-third of the total cost of making aluminum.

Please let me explain a few key points.

Within the last 10 years, electricity costs to U.S. aluminum producers have risen from the lowest quartile in the world to the highest. These electricity cost increases have already rendered some U.S. plants so uncompetitive they have permanently closed. The average cost of electricity to U.S. aluminum plants is about 23 mills, or 2.3 cents per kilowatt-hour. The average cost to our foreign competition is 16 to 18 mills, or 1.6 to 1.8 cents per kilowatt-hour. Some foreign producers pay as low as five mills.

Primary aluminum is a commodity. U.S. producers compete on price with the rest of the world and cannot pass increased costs along to their customers. The customers will simply find other suppliers at the market price.

The effect of these noncompetitive power rates, commodity pricing, and expanding foreign production—which is always low cost and sometimes subsidized—is painfully clear. When we testified before this committee in 1984, the United States had 32 primary aluminum plants. Today only 21 of them are still in operation. The others have been forced to shut down.

Of the 21 remaining, 11, fully half the remaining U.S. aluminum plants, may be seriously jeopardized by the acid rain legislation you contemplate.

The Aluminum Association has made its own survey of member companies to estimate costs. We estimate that acid rain legislation considered last year would have increased production costs by 12 to 15 percent at the 11 plants I have mentioned, all of which depend on coal-fired electrical generation. As an example, Kaiser Aluminum estimated that the cost of production would increase about fifteen percent at its Ravenswood, West Virginia, plant.

When an aluminum plant shuts down, local or regional economies are hurt severely. Aluminum smelters are major local employers. Jobs and taxes are lost. And ironically, the electric utility itself may suddenly be forced to replace their lost revenues by raising their rates to the remaining industrial, commercial, and residential consumers.

Perhaps I can best explain this by talking about an Alumax plant, the Eastalco smelter, located just up I-270 in Frederick, Maryland. I have been associated with Eastalco for many years. Eastalco is similar to the industry as a whole in seeing its costs rise, particularly those of electricity. It is one of the few remaining major industrial employers in western Maryland, and it provides some 770 well-paying jobs. It is estimated that 1,200 indirect jobs and $144 million in economic benefits are generated in the community.

Eastalco is the largest industrial customer of its utility, Potomac Edison. We purchase about $73 million in power per year at full capacity, consuming about 21 percent of PE's output. But Eastalco is a plant on the edge. Primarily, this is because at 28 mills Eastalco pays the highest electricity rates for any aluminum smelter in the U.S.

To remain competitive, virtually every cost factor within the reach of management or labor has been reduced to the minimum. We renegotiated the costs for raw materials, natural gas, and transportation. We reduced the ranks of management. Last year at labor contract time, we asked our union employees to help us reduce our overall labor costs. We explained that times have changed, and to retain competitiveness every aspect of the plant must improve. Though it was very difficult, we finally agreed on ways to reduce the costs and improve the productivity of our workforce.

The only remaining cost factor is electricity the largest cost of all. We are addressing that now with our supplier.

Beginning last year, Eastalco began an experiment to modulate its daily power consumption to relieve the utility's peak demand. This was an innovative approach in the world of aluminum production. And it is working. We are very encouraged by the results, which can save both the utility and us significant costs. We will conclude the experiment in November and anticipate a renegotiated power contract reflecting these potential savings.

Now, enter acid rain legislation. We estimate these bills will cost Eastalco about $10 million per year, assuming an SO_2 reduction of 12 million tons. Gentlemen, if legislation requiring SO_2 reduction similar to the proposals before this committee are enacted, you will negate every sacrifice we and our employees have worked so hard to make.

In conclusion, I hope we have conveyed to you the urgency which we place upon this issue. I also hope we have conveyed the importance of our survival as a United States industry, not only for our own sakes but for that of our country and many of its individual citizens.

We urge you to find a way of dealing with acid rain that does not concentrate the costs and dislocations on the aluminum industry nor on the people and communities which our industry supports.

Gentlemen, I want to thank you for the opportunity to testify before your committee today. I would be happy to answer any questions.

Senator BREAUX. Thank you very much, Mr. Aylen, for your testimony, and all the members of the panel.

I would recognize Mr. Symms first.

Senator SYMMS. Thank you Mr. Chairman.

I want to thank all of you on the panel for being here this afternoon at this late hour.

Jack, it is particularly nice to see you. We go back to when you were Secretary of Agriculture and I was over on the House Agriculture Committee. It is good to see you in front of the committee again.

Mr. Aylen, you just made a statement to the effect that you had 22 producing aluminum plants left in the United States?

Mr. AYLEN. There were 32 plants 2 years ago. There are 21 today.

Senator SYMMS. There are 21 left, and 11 of those would be at risk?

Mr. AYLEN. That's correct.

Senator SYMMS. If some of the legislation passed that would raise the price of electricity. Where are those plants?

Mr. AYLEN. Those are plants that receive their power from coal-fired plants.

Senator SYMMS. Where are they located mostly, in the midwest or southeast or where?

Mr. AYLEN. Quite a few of them along the Ohio River; our plant in Frederick, Maryland; one in South Carolina; basically plants that are supplied by coal-fired utilities.

Senator SYMMS. OK. Well, I appreciate that very much. I think that is a very important point that we can't let go unnoticed here in this committee.

I wanted to ask Mr. Ellerman a question or two about the Canadians, a line of questioning that I pursued with the panel previously. How much headway have they made versus how much we have made in both utilities and also in the nonferrous smelters. A lot of our metals and minerals now are smelted in Canada or Mexico because, as I said earlier, we have managed, through our industrial policy in the United States, to run some of those people out of the country?

Mr. ELLERMAN. That's correct. Thank you very much. It's in a letter, I believe, to the chairman of this committee, and it has certainly been inserted into the record.

The Canadian ambassador to the United States has made a comparison between—or what is a purported comparison—between the two countries, noting that the leading source of emissions in Canada, namely, smelters, has achieved a 55 percent reduction of emissions, whereas the leading source of emissions in the United States, electric utilities, has achieved only an 8 percent. He holds that forth as a comparison of the effort between the two countries.

What is most compelling about that comparison is what he leaves unsaid, which is notably that while the Canadians did reduce their emissions in the period 1970 to 1984 by 55 percent, the reduction by the smelting industry in the United States was 75 percent, about some 30 to 40 percent more than what was achieved in Canada, and at that the average rate of emissions of sulfur dioxide per ton of metal or per pound of metal is half in the United States what it is in Canada.

With respect to utility emissions, indeed we did achieve an eight percent reduction of emissions over that same period of time in the United States.

What the ambassador did not say is that in Canada, Canadian utilities had a 55 percent increase of SO_2 emissions over that same period of time. Of course, statements have been made earlier before this committee in this hearing concerning the level of achievement or emissions, comparable rates between Canadian and U.S. utilities. It bears also noting that much of the reduction of SO_2 emissions from utilities that would be achieved in Canada under their acid rain program will be achieved because of surplus hydro and nuclear power which is coming on line and would occur in any case whether there were an acid rain control law or not. So it's a much cheaper reduction for them.

In summary, they basically are catching up with where the United States has long been with respect to emission levels and rates of emissions and do not constitute a cause for us to take further action to meet comparable levels.

Senator SYMMS. All right. Is there going to be a lot of Canadian electricity then sold in the United States in the future? Does that look likely?

Mr. ELLERMAN. That is a complex issue. It isn't necessary to go into the so-called conspiracy theory, which I for one do not subscribe to. But I think it bears stating that the effect of acid rain controls would raise the cost of generating electricity in the United States, and the Canadians do price their electricity exports to the United States on an avoided-cost basis. Presumably, it would mean a greater incentive for them to export more, to build the plants to meet that demand.

Senator SYMMS. Thank you.

Mr. Knebel, you made some comments about the significance that this legislation was really more than just acid rain control, but an industrial policy. You also made some comments with respect to the impact on health.

How are we competitively in the mining industry and the smelting industry going to fare on the same comparison as the utility industry with this legislation in an internationally competitive position?

Mr. KNEBEL. Well, Senator, as you know, minerals are fungible commodities and they are subject to global pricing, and the market price determinant clears the market and determines who the purchaser is going to be.

If indeed an extractive industry in one country has a cost for electricity which is higher than another country, you have a choice to either mine at a loss or to shut down and lose the marketplace. We are not a nationalized mining society in this country, so we lose out.

But what we were trying to describe was that during the last 10 years the U.S. mining companies have become much more efficient. They have cut their costs greatly through cooperation and givebacks, a lot of which came from labor. So yes, we can be competitive at today's prices. But if you pass this legislation, you are just going to take us right out of the ballgame. That is what I was saying.

Senator SYMMS. Well, I appreciate your comments very much. Thank you.

I see my time is up. Again I want to thank all of you for being with us here today.

Thank you very much, Mr. Chairman.

Senator BREAUX. Thank you, Senator.

If there was one theme running through this panel pretty much, with a possible exception, it's cost. Right down the line.

Mr. Knebel, you say:

> These estimated costs are staggering and they cannot be considered the only economic consequences of the acid rain legislation. The costs that really count, namely, the increased price of U.S. goods and the potential losses to our international competitiveness, have not been examined by the Congress.

I think that is true pretty much of all of the witnesses saying pretty much the same thing.

Mr. Aylen, you were saying the same thing about how much more electricity is going to cost.

Mr. Ellerman, you speak also with regard to increased costs. But you are comparing costs as the fact that it is going to cost you something to add these things. There is no question about that. But shouldn't it be appropriate that you compare the cost of not doing it? How much does the disease cost? How much does cancer cost? How much does it cost to bury somebody?

Here we have one of the witnesses on the first panel talking about a 2 to 5 percent air pollution effect on human mortality and morbidity. Are any of you, in your industries, comparing some of those costs?

Mr. Knebel, to say that the only costs are the costs to your industry, what about the health costs? No one in your industry ever talks about that. Isn't it fair to do a comparison of what it's going to cost versus how many fewer people will contract lung cancer or emphysema or anything else associated with not having it on?

Mr. **Knebel**. Senator, we are not unmindful of all the aspects of this.

Senator **Breaux**. You don't mention it in your testimony. You say the only costs you ought to be aware of is the cost to your industry.

Mr. **Knebel**. That's true.

Senator **Breaux**. You agree with that? Is it not fair to compare the cost of the health problem we have in this country?

Mr. **Knebel**. We have been very concerned with the health situation. I think if you look at the regulatory programs which are now in place with respect to miner safety and welfare, you will find that that industry is far more heavily regulated than any other industry in this country.

Senator **Breaux**. That is fine. It is working. People are doing better in that industry because of regulations, perhaps. It has certainly contributed to it.

With regard to the costs, Mr. Ellerman, and others here on the panel, people that supply the equipment that you are going to have to put on many of the plants say that you guys talking about costs of $12 billion or $3 billion or these horrendous increases are just not real.

One of the witnesses talks about—and maybe he is all wrong, maybe he is just wishing he can sell you a lot of equipment—but George Cranston says they believe a reasonable operating cost for retrofit is six mills per kilowatt.

He goes on,

> Assuming 100,000 megawatt of electrical capacity must be retrofitted with scrubbers under the acid rain bill to achieve these reductions in the legislation, at an average annual capacity factor of 55 to 65 percent, the first-year cost would be $3.4 billion.

This is less than one-third of the $12 billion cost stated by some industry groups. If it is assumed that because of plant retirements, which you are going to have retirements, and some fuel switching, which you are going to have, that if only 30,000 megawatts will be needed to be retrofitted to achieve the 10-to-12-million-ton reduction, then the first-year costs of retrofitting would be about $1 billion.

I mean, somebody's cost estimates are really wrong. Either this person doesn't know what he is talking about, or some of you down there don't know what you are talking about.

Mr. **Ellerman**. Mr. Chairman, may I speak to that for a moment?

Senator **Breaux**. Sure.

Mr. **Ellerman**. I listened with a great deal of attention to what was said earlier today and, in earlier hearings before this committee. I am personally not competent to speak about the health effects.

However, I do know there are experts on health effects of sulfur dioxide and the other pollutants who disagree with those findings. They have requested the opportunity to testify before this subcommittee, and with your permission, sir, I would like to be able to introduce that testimony.

Senator **Breaux**. Well, you could talk with the chairman. I am just filling in for him. I would like to see it personally, and I am sure Mr. Mitchell would, too.

Mr. **Ellerman**. Into the record? Yes.

Senator **Breaux**. Maybe you all will talk about that.

Mr. **Ellerman**. We will submit that later for the record, with your permission, sir.

[The information referred to has been received and may be found beginning at p. 652.]

Senator **Breaux**. Everybody's testimony here spoke of the cost, but nobody talked about the offset of health benefits.

Mr. Oppenheimer?

Mr. **Oppenheimer**. Yes. I would just like to—of course, I agree with the Senator—I would like to say that we are paying. We are paying every day for the damages due to acid rain. We are paying in terms of health. We are paying in terms of materials corrosion damage, damage to forests, damage to natural resources. Those dollars pile up. They are coming out of everybody's pockets.

In terms of the competitiveness issue, why is it that the other industrialized countries of the world—Japan, Germany, some of the other European countries—have made the decision that they can have competitiveness and a healthy environment too?

Senator **Breaux**. Yes. And you know, the other point is that what the heck does it help us to be competitive industrially if we are spending $16 billion a year in direct costs which are estimated by the American Lung Association at $40 billion, if you include lost wages? That is not really competitive if we're not taking care of the people that we are intending to take care of.

Mr. Ellerman, you don't like what I am saying, but you are not telling me anything different.

Mr. **Ellerman**. Those estimates—there are two sides to that—those estimates are very controversial. Those estimates of health effects have been challenged, and there are others who are more competent to address that than I. As I stated, if the record would remain open, I would be glad to submit that for the committee's consideration.

Senator **Breaux**. Well, we could go on. Obviously, there is a lot of difference of opinion. I am just disturbed that we don't get the other side when we talk about the costs.

Mr. **Ellerman**. The second aspect, aside from health effects, with respect to benefits from acid rain controls pertains to acidification of waters, forest decline, and so forth. There has been a great deal of research on that. We will have the results of that coming out in the NAPAP study or interim assessment soon.

But I think it is fair to say that there is a question at the very least concerning the degree of effect the sort of emission reductions that are talked about here would have on the observed acidity of waters and forest decline.

We have been having quite a reduction of SO_2 emissions over the past decade, not as dramatic as would be achieved under acid rain control bills, but still there has been no effect from the reduction that we have witnessed to date.

Senator **Breaux**. Mr. Hawkins says we can't believe your statistics that say we are having a decrease in SO_2 emissions, because the measuring devices are estimates and not measuring devices that are installed on each plant.

I would ask, do we not have measuring devices on each plant, and how much would that cost to put them on?

Mr. **Ellerman**. All data on SO_2 emissions are estimates. There are many different ways to go about making the estimate. One approach, the one we have used, uses the principle of materials balances. You look at the amount of sulfur that goes into the plant, given the coal that is burned there; you can make very good engineering estimates as to how much is retained by scrubbers, and you know what's coming out.

Senator **Breaux**. Wouldn't it be more accurate to put some kind of a measuring device on the smokestack?

Mr. **Ellerman**. You could as well. I feel confident it would confirm the same numbers. EPA has confirmed those numbers.

Senator **Breaux**. Well, why don't we do that? I mean, why don't we have measuring devices on each plant?

Mr. **Ellerman**. I am not the one to answer that.

Senator **Breaux**. Can anybody speak to why we don't measure each plant? Wouldn't it be a simple thing to do?

Mr. **Laabs**. Actually, all new sources that are built are measured. New-source performance standards for all boilers over 250 million Btu's of heat input always require new sources to be monitored.

Senator **Breaux**. Well, then why aren't those numbers being used when the National Coal Association says they just use an estimate?

Mr. **Laabs**. I think the answer to that is that when you build one of these data bases, everybody has to go out and look for the easiest, quickest way to put it together. From the National Coal Association's standpoint, I would——

Senator **Breaux**. The easiest and quickest way? How about the most accurate way?

Mr. **Laabs**. Well, the most accurate way would be great if somebody could come up and tell me what that is for sure.

Senator **Breaux**. Well, didn't you just tell me that you can stick it on a smokestack and you've got an accurate assessment?

Mr. **Laabs**. No, because smokestack monitoring, number one, has some limits of accuracy that have to be——

Senator **Breaux**. Isn't that more accurate than an estimate?

Mr. Laabs. Usually not.

Senator Breaux. Then why did you do it?

Mr. Laabs. In fact, if you burn a pound of coal that has a tenth of a pound of sulfur in it, you are going to create approximately two-tenths of a pound of SO_2.

Senator Breaux. All right, here is the problem we have. We have one witness telling us that we're doing estimates, and another witness says you don't do the estimates, the estimates we can't depend on, you should have something on each smokestack to make an accurate assessment; and you are telling me that if you do that, that's not accurate.

My question is why did you do it?

Mr. Laabs. No, I am saying both methods have relative accuracy that have to be taken into account when you start totalling up the numbers.

Senator Breaux. Well, which is the best way? Let's assume that we want to craft the best way of measuring what we are putting out into the air. What's the best way of doing it?

Mr. Laabs. For an individual boiler, my own personal feeling is that the best way of doing it is to do a mass balance, as Mr. Ellerman was talking about.

Senator Breaux. Do the estimate of what is going in?

Mr. Laabs. Yes.

Mr. Ellerman. You take what's going in and you assume that everything except what you can account for in terms of being removed by the scrubbers or retained in the ash goes out the stack. That's what we have done.

Our figures and estimates have been verified by other measurements in the field and by EPA who makes these measures.

Senator Breaux. So it's pretty much an industry standard that the best way to measure whether we're doing better or worse would be to estimate SO_2 content of the material going in?

Mr. Laabs. For accuracy purposes, I think that's right. The advantage to monitoring which Mr. Hawkins was talking about really is not additional accuracy so much as it is ease of data handling. When you put a monitor on the stack, you can generate the stuff off onto tapes or disks and computerize it. So for our purposes it is real simple to handle the data that way. For purposes of accuracy, I am not sure it is.

Senator Breaux. Any comments from this panel with regard to the argument that some would say, that clean-coal technology is a few years down the road, it is a much better means of ensuring clean air than the technology that is being recommended in these legislative bills now; so why not wait a few more years, get the best technology and apply it at that time?

Mr. Laabs. Senator, if I could address that, I have a specific situation where I think that exact thing has occurred. My company's largest and oldest plant had a boiler house, pieces of which dated back almost 50 years. Under the Clean Air Act, as originally passed in 1972 and the SIP amendments that came out as a result of that for our State, we had an allowable SO_2 emission rate for those boilers of approximately 6 pounds per million Btu.

That 6-pound-per-million-Btu allowable emission rate was for a long time considered by the company to be something of an asset because it allowed us to buy cheap high-sulfur coal and burn it.

The alternative methods for trying to reduce emissions for those existing boilers would have been the addition of scrubbers at considerable capital cost for buying low-sulfur coal. By waiting for the ten or twelve years that it took for the technology to catch up with our needs, we are now in the process of investing approximately $75 million in a whole new boiler facility which has an allowed emission rate of 1.2-pounds-per-million-Btu, or approximately a fifth of the old boiler house.

That reduction in emissions is not occurring due to any regulations or laws that came into effect that affected us specifically, but is happening because the technology which allowed us to burn coal cleanly finally caught up with our needs in terms of affordability in capital investment and operating costs.

Senator BREAUX. You are saying really the legislation then really wouldn't help you get any cleaner than you are by using technology that really is not prescribed by the legislation?

Mr. LAABS. That is one of the reasons they asked me to testify is because it doesn't really affect any of my boilers specifically.

Mr. OPPENHEIMER. Senator, I would just like to comment.

Senator BREAUX. Mr. Oppenheimer?

Mr. OPPENHEIMER. Probably the most effective way to get the investments necessary into new technologies is to assure the industry that the controls will be necessary over the next few years.

Senator BREAUX. Why did we do it?

Mr. LAABS. Why did we do it? We finally reached the point where the boiler house was old enough that we had two choices facing us. We could plan to invest the approximately $50 million in capital over the next 10-year period for maintenance and upgrading of the existing facilities, or we could invest over a much shorter time frame right up front about $75 million in a whole new boiler house.

Because fluid bed technology had become available and was demonstrating itself as being a viable and easy-to-operate system, we chose the latter. We decided that the higher capital investment would reward us with higher reliability, and frankly, it's just a big pain in the neck to try to run eight or nine old boilers if you can build a whole new facility for approximately the same annualized costs.

But that technology, the circulating fluid bed that we are using, as recently as only 3 years ago was simply not proven, and we were, gosh, I think probably one of the fourth or fifth orders placed for a facility of our type of our size.

Senator BREAUX. You are satisfied with it?

Mr. LAABS. It's not on line yet, but we are very optimistic. Some of the other ones that have come on line in the meantime are working very well.

Senator BREAUX. Well, I am supposed to be in the chair presiding, so I have to run over to the floor.

I think your testimony has been helpful. It is obviously a difficult thing. As one member who is just getting into this, I am getting totally different views on statistical recommendations, which is a real problem. Some say it's getting better without the laws being changed, others saying it's not. Then we have to make a decision based on that.

So we thank this panel very much for being with us. I think it has been a good hearing today.

The subcommittee will stand adjourned till further call of the Chair.

[Whereupon, at 5:15 p.m., the subcommittee was adjourned, to reconvene upon the call of the Chair.]

[Statements and other material submitted for the record and the bills S. 300 and S. 321 follow:]

TESTIMONY OF SENATOR GORDON J. HUMPHREY

JUNE 17, 1987

SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

MR. CHAIRMAN, I AM SURE YOU AGREE, WE NEED ACTION ON ACID RAIN. THE FAILURE OF CONGRESS AND THE ADMINISTRATION HAS BECOME A GREAT EMBARASSMENT. MY CONSTITUENTS WANT A SOLUTION, AND I URGE THE COMMITTEE TO REPORT A BILL AS SOON AS POSSIBLE.

I AM GLAD TO HAVE THE ACTIVE SUPPORT OF NEW HAMPSHIRE GOVERNOR JOHN SUNUNU WHO TESTIFIED BEFORE THIS SUBCOMMITTEE YESTERDAY IN FAVOR OF LEGISLATION WHICH SENATOR PROXMIRE, SENATOR SIMPSON AND I HAVE INTRODUCED, S. 316.

WHILE SERVING ON THE COMMITTEE, I HEARD SCIENTISTS TESTIFY REPEATEDLY THAT EMISSIONS RESULTING FROM THE BURNING OF FOSSIL-FUELS LEAD TO THE FORMATION OF ACID RAIN. ACIDIC DEPOSITIONS ARE CONTRIBUTING TO THE DESTRUCTION OF OUR LAKES, OUR TREES AND OUR WILDLIFE IN NEW HAMPSHIRE AND THROUGHOUT AMERICA. IN ADDITION, RECENT EVIDENCE HAS SUGGESTED THAT PROBLEMS ASSOCIATED WITH ACID RAIN MAY INCREASE PUBLIC HEALTH RISKS.

I AM SURE THE COMMITTEE SHARES MY FRUSTRATION OVER THE SEEMINGLY UNBREAKABLE ACID RAIN GRIDLOCK. OBVIOUSLY, A VARIETY OF DISPARATE REGIONAL INTERESTS MUST BE ADDRESSED IN SEEKING ACID RAIN CONTROL LEGISLATION WHICH WILL EFFECT SIGNIFICANT EMISSION REDUCTIONS WHILE MINIMIZING COSTS.

IS A "CONSENSUS" APPROACH POSSIBLE? I THINK SO.

ALL OF THE LEGISLATION PENDING BEFORE THE COMMITTEE CONTAINS ELEMENTS NECESSARY FOR ENACTMENT OF EFFECTIVE, PRACTICAL ACID RAIN LEGISLATION. A COMBINATION OF PROVISIONS CONTAINED IN THESE BILLS COULD LEAD US TO OUR COMMON GOAL.

I WOULD LIKE TO ADDRESS SPECIFICALLY PROVISIONS CONTAINED IN THE CHAIRMAN'S BILL, S. 321, AND IN THE BILL WHICH I INTRODUCED WITH SENATORS PROXMIRE, SIMPSON, REID, DECONCINI, D'AMATO AND BOSCHWITZ, S. 316.

FLEXIBILITY, FREE CHOICE OF REDUCTION STRATEGY AND USE OF CONSERVATION SHOULD BE INCLUDED IN ANY ACID RAIN LEGISLATION. THESE CONCEPTS ENSURE IMPLEMENTATION OF A LEAST-COST APPROACH TO REDUCING ACID RAIN PRECURSORS. GIVEN THE OBSTACLES WHICH FACE US AT EVERY TURN, COST IS AN ISSUE WHICH WE SIMPLY CANNOT AFFORD TO IGNORE.

FIRST, WE SHOULD AVOID LEGISLATION WHICH IMPOSES A PLANT-BY-PLANT EMISSION STANDARD. ESTIMATES HAVE SHOWN THAT PLANT-BY-PLANT STANDARDS CAN RESULT IN A DRAMATIC INCREASE IN COST WITHOUT AN EQUALLY DRAMATIC REDUCTION IN EMISSIONS. RATHER, WE SHOULD SEEK A FLEXIBLE REDUCTION STRATEGY BASED ON ANNUAL STATEWIDE AVERAGING, SUCH AS THAT INCLUDED IN S. 316. BY ALLOWING STATES TO MEET A STATEWIDE REDUCTION GOAL RATHER THAN A STRINGENT PLANT-BY-PLANT STANDARD, WE CAN ACHIEVE REDUCTIONS OF 10 TO 12 MILLION TONS OF SO2 AT A FRACTION OF THE COST. IT IS IMPORTANT TO AVOID THE IMPOSITION OF PLANT-BY-PLANT STANDARDS WHICH MAY DRIVE UP COSTS WITHOUT DERIVING SIGNIFICANT ENVIRONMENTAL BENEFITS. AGAIN, OUR OVERRIDING OBJECTIVE IS TO REDUCE AGGREGATE EMISSIONS.

SECOND, ACID RAIN LEGISLATION MUST RECOGNIZE THE NEED NOT TO PREVENT ENERGY DEVELOPMENT AND ECONOMIC GROWTH. S. 321 SHOULD BE MODIFIED TO ENSURE THAT THE PROVISIONS GOVERNING FUTURE GROWTH ARE DESIGNED TO ALLOW CONSTRUCTION OF CLEAN NEW PLANTS WHILE PROHIBITING INCREASES IN EMISSIONS FROM OLD DIRTY PLANTS.

THIRD, IN ORDER TO MAXIMIZE THE BENEFITS OF A FLEXIBLE APPROACH, S. 321 SHOULD BE REVISED TO INCLUDE INTER- AS WELL AS INTRA-STATE TRADING. MANY MAJOR UTILITY POWER POOLS EXTEND INTO SEVERAL STATES. ICF, A CONSULTING FIRM RETAINED BY THE ENVIRONMENTAL PROTECTION AGENCY, ESTIMATES THAT BY INCLUDING AN INTER-STATE TRADING PROVISION THE COST OF OVERALL EMISSION REDUCTIONS WOULD BE REDUCED BY 10 TO 15 PERCENT.

FOURTH, STANDARDS FOR REDUCTION OF NOX EMISSIONS FROM STATIONARY SOURCES COULD BE MODIFIED TO PRODUCE COMPARATIVE REDUCTIONS AT HIGHLY REDUCED COSTS. I RECOMMEND THAT THE COMMITTEE CONSIDER SETTING DIFFERENT EMISSION RATES FOR VARIOUS CATEGORIES OF BOILERS TO ACHIEVE THE REQUIRED OVERALL REDUCTION IN NOX TONNAGE.

FIFTH, S. 316 REQUIRES A TWO-PHASE APPROACH TO ACID RAIN CONTROL WHICH WOULD LEAD TO A CUMULATIVE REDUCTION OF APPROXIMATELY 25 MILLION TONS OF SO2 WITHIN 5 YEARS. THERE IS NO SENSE IN WASTING TIME WHEN WE HAVE THE ABILITY TO PROVIDE ANNUAL REDUCTIONS OF 5 TO 6 MILLION TONS OF SO2. A PHASED APPROACH RESULTS IN IMMEDIATE EMISSIONS REDUCTIONS THROUGH IMPLEMENTATION OF LEAST COST METHODS WHILE ALLOWING AMPLE TIME FOR LARGER REDUCTIONS THROUGH IMPLEMENTATION OF DEVELOPING CLEAN COAL TECHNOLOGIES.

FINALLY, S. 316 GIVES COMPLETE CREDIT FOR THE USE OF CONSERVATION TO ACHIEVE OVERALL EMISSION GOALS. THIS WILL SIMULTANEOUSLY DECREASE EMISSIONS, COSTS, AND DEPENDENCE ON IMPORTED SOURCES OF ENERGY. I URGE THE COMMITTEE TO CLARIFY THE LANGUAGE OF S. 321 TO ENCOURAGE FULLY THE USE OF ENERGY CONSERVATION.

MR. CHAIRMAN, I HAVE A MORE DETAILED STATEMENT OUTLINING THE SUGGESTIONS WHICH I HAVE MADE TODAY.

I STAND READY TO ASSIST THE COMMITTEE IN ITS EFFORTS TO CREATE A BILL WHICH CAN WITHSTAND POLITICAL AND REGIONAL PRESSURES AND GAIN THE SUPPORT OF A MAJORITY OF THE SENATE.

AS OVER 100 ENVIRONMENTAL GROUPS IN THE NORTHEAST URGED LAST WEEK, "LET'S MAKE THIS THE CLEAN AIR CONGRESS."

THANK YOU.

Statement by Senator John Kerry

Senate Subcommittee on Environmental Protection

Clean Air Act

June 17, 1987

Mr. Chairman, thank you for the opportunity to present testimony before the Subcommittee on Environmental Protection on the critical issue of acid deposition. As you recall, I testified before the committee last fall. At that time, I and other members of Congress, tired of waiting for the Reagan Administration to take some responsible action, urged that acid rain control become the top enviromental priority for the 100th Congress. I am very pleased to see that it has, and applaud this subcommittee for moving quickly on an issue so important to the well being of America's natural resources.

Massachusetts and other New England states have long been adversely affected by acid deposition. At the same time, we have also waited for far too long for a solution to be put forth by the current Administration. Since 1983 in Massachusetts, an ongoing study has been conducted to put together a data base with which to study the magnitude of acid rain's effects on our surface waters. Recently, phase two of this study has been completed. The findings I might add are alarming. The Massachusetts Acid Rain monitoring project sampled 2,500 lakes, ponds and reservoirs and over 5,000 miles of brooks, rivers and streams. 75 percent of the 1,200 bodies of water tested were found to be sensitive to acidification due to acid deposition, 20 percent were critically sensitive and 5 percent were found to be acidified or basically dead. What do these statistics mean? In essence they translate into the fact that in the four years since the collection of this data began, the problem has gotten worse.

The devastating consequences of acid deposition are not solely felt by estuaries, rivers and other bodies of water. In Massachusetts for example, approximately $13 million is being spent each year to protect and restore statuaries and buildings eaten away by acidic moisture. Basically, if we take into account the human, ecological and financial impact of this damage and project it on a national scale, the deterioration and its cost become enormous.

Massachuestts has responded to this information definitively. The Commonwealth has enacted one of the most comprehensive acid rain control bills in the country. It mandates a substantial reduction in both sulfur dioxide and nitrogen oxide emissions from Massachusetts sources. However, despite the State's commitment, they admit, and I agree, that they cannot do it alone. State action should not serve as a substitute to fix America's problem of acid rain, it should act as a component of a larger national program. The federal government must lead the nation as a whole on this issue.

This Administration has called for one study after another to look at the issue of acid rain, and in their view, studies apparently address the problem adequately. On the other hand, this Committee is testimony to the meaning of what true commitment to finding a solution to acid rain means. Hearings have been held and various legislative initiatives have been introduced.

My own bill, S. 95, the Acid Rain Control Act of 1987, stems from my previous experience as a member of the National Governor's Association Acid Rain Task Force, while I served as Lieutenant Governor of Massachusetts. It is also based on observations I made as Chairman of the New England Governor's Acid Rain Working Group, during a fact-finding tour in Europe in 1984, where I witnessed the devastating affects of acid deposition on Europe's forests.

My legislation and many of the bills before this committee generally agree on the fundamentals: sulfur dioxide emissions need to be cut approximately in half; nitrogen oxide emissions must be reduced; reductions should be achieved by the middle of the next decade; and states should be given flexibility in designing their own methods to reach mandated reductions. I fully concur, these proposals are the most effective way to solve this problem.

However, the economic implications of a national control program and its impact on various regions of the country have unfortunately clouded the acid rain debate. A lesson that we learned through the NGA Task Force, is that in order to reach a "meeting of the minds", a national concensus is necessary. And

Mr. Chairman we developed a constructive, general approach. A major component of that approach is the notion that there should be a broad sharing of the financial burden among producers of acid rain and those who will benefit from its reduction, the nation as a whole. Acid rain is a national dilemma; and we want to mitigate to the greatest extent possible, the cost for all parties involved. The plan proposed in my legislation, I believe, reflects the best of the "polluter pays" concept without bankrupting companies or displacing workers.

To do this, I suggest that a fund be created to subsidize the costs of capital equipment to reduce emissions based on a payment of approximately $147 per ton reduced. The payment formula would favor the installation of capital equipment to avoid coal miner job displacement while fixing the subsidy at a level which will permit the use of newer and less costly technologies. I would further recommend the establishment of a three-tiered graduated fee in electricity generation to collect that subsidy. This would result in shifting the burden of reduction from areas of the country where sulfur emissions are currently lower to those areas which have greater emissions. Yet, nonetheless, areas with greater emissions would still receive greater subsidies from the fund. This system is designed to be an equitable approach, where those companies who clean up their emissions contribute less money to the fund, and furthermore, this approach seeks to bring people into the process in a way that does not displace jobs, does not create inequities, yet still works towards a real solution.

In addition, I recommend a fund for research and development efforts which will assist us in the process of bringing new technologies on line. It is my belief that such technologies can be developed very quickly once we have a mandate, and will not be as costly as some predict.

Finally, I would also like to urge the committee to address the international implications of acid rain. I am familiar with Senator Mitchell's proposal which directs the President to negotiate an agreement with Canada and Mexico for controlling air pollution, and I strongly endorse such a measure. As you recall, just a few months ago, at the conclusion of his meeting with Prime Minister Mulroney of Canada, President Reagan publicly agreed to consider a bilateral pact aimed at reducing transboundary emissions. Based on prior history, I frankly, have little confidence in the firmness of this commitment. Consequently, I have requested that the Foreign Relations Committee address the damage that transboundary emissions is having on the United States' relationship with Canada, one of our oldest and closest allies. Senator Pell has agreed to my request to hold hearings on this issue in the near future. I would greatly appreciate any thoughts or recommendations that members of this subcommittee may want to offer for this upcoming hearing.

I want to thank you Mr. Chairman and other members of the subcommittee for the opportunity to testify today on an issue that is so critical to the well being of America's natural reosurces.

TESTIMONY OF

THE HONORABLE JOHN H. SUNUNU

GOVERNOR OF NEW HAMPSHIRE

ON BEHALF OF

THE ALLIANCE FOR ACID RAIN CONTROL

BEFORE THE

SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

JUNE 16, 1987

Mr. Chairman, Members of the Subcommittee, it is a pleasure to appear before you this morning on behalf of the Alliance for Acid Rain Control. As most of you know, the Alliance is a nationwide coalition of governors, corporate leaders, environmentalists and leading academicians committed to winning passage of cost-effective acid rain control legislation.

Mr. Chairman, you and the members of this Committee deserve a great deal of credit for spearheading the effort to craft legislation to reduce sulfur dioxide and nitrogen oxide emissions and stem the damage to our sensitive lakes and forests. Coming from New Hampshire, I can tell you that we in the northeast are deeply concerned about the decline and death of many of our lakes, the deterioration of visibility, the wearing away of valued monuments and buildings, and the increasing evidence of forest damage caused by acid rain and ozone. And this concern is shared by governors and other Alliance members from the south, the west and the upper midwest.

We are even more dismayed by the nearly seven years of polarization in Congress which has stymied efforts to stop the environmental damage. I am here this morning to urge this Committee to help end the polarization by moving legislation which is more moderate than past efforts, that recognizes that the costs of control do in fact matter, that recognizes that it is more important to get started on controlling acid rain than it is to craft the perfect environmental solution.

As you know, the Alliance has worked closely with Senators Alan Simpson, Bill Proxmire, Gordon Humphrey, Harry Reid and others to produce S. 316. We believe this bill meets the goals I have just outlined. It is a reasonable, cost-effective piece of legislation. It relies on a two-phased approach to achieve a ten million ton sulfur dioxide reduction and a three million ton nitrogen oxide emission reduction. And it's a great buy for consumers, less than $3 billion annually. Three billion dollars a year may sound like a large amount of money, but when you realize that the electric power industry collected more than one hundred thirty five billion dollars in gross revenues in 1985, three billion dollars annually to stop the damage to our lakes and forests does not seem too much to be a high price. In comparison, ICF, Inc. estimates that S. 321 would cost more than $10 billion annually and S. 300 more than $20 billion per year.

The secret of the Proxmire-Simpson bill's low cost lies in three factors: size of the emissions reduction, flexibility of approach, and phasing of reductions. According to EPA/ICF analyses, the costs of acid rain control double as you increase the SO2 reduction from ten to twelve million tons and double again as you reach a 14 million ton reduction. In addition, flexible approaches which allow states and companies to select the least costly techniques to clean up emissions are dramatically cheaper than plant-specific reduction requirements such as those found in the Stafford bill, S. 300. This is because plant-specific reduction requirements force you to put technological controls on every plant, rather than concentrating cleanup at larger units and switching fuels at smaller units with high retrofit costs. Since with acid rain, we are really only interested in reducing the overall loadings of sulfur dioxide and nitrogen oxide in the atmosphere, plant by plant requirements are unnecessary. Finally, phasing of reductions insures that lower cost options are pursued first. More time is provided for the development of clean coal technologies that may reduce the cost of the second phase of emission reductions. And states and utilities have more time to make changes to their second phase strategies based on the extensive research now underway.

While the difference in costs between the Proxmire-Simpson bill and your bill, Mr. Chairman, are at first glance fairly large, they can be easily reduced by a melding of the two bills. Combining the cost-saving features of the Proxmire-Simpson bill with the solid structure and strengths of the Mitchell bill will produce an acid rain package with broad support in the Senate. Your bill relies on the flexible statewide emissions reduction approach that we favor. However, some of the provisions in section 183 (Special Rule for Growth) of S. 321, undercut this solid approach. I would suggest several modifications to S. 321:

1) deletion of the requirement in section 183 that once a power plant reaches thirty years of age it must meet a plant-specific emission rate of .9 lbs per million Btus. This provision forces the use of scrubbers on most power plants and dramatically increases costs without achieving any additional emission reductions.

2) modification of the provision in section 183 creating an absolute ceiling on all sources of SO2 with the ceiling shrinking as old plants retire. This provision would stifle new economic growth. But simply limiting the cap to emissions from old dirty plants would prevent any serious emission increases while preserving the opportunity for needed economic growth.

3) modification of the nitrogen oxide emission reduction requirements of section 182 to insure that we get the largest reduction we can from each plant through cost-effective techniques. This provision needs to be restructured to require a 3 million ton NOx reduction and a target emission rate for each major category of power plant. This will insure that high NOx emitting boilers such as cyclones are not forced to use very costly, relatively unproven technologies like selective catalytic reduction but are required to achieve a cost-effective reduction.

4) inclusion of explicit phases in the legislation with a 6 million ton SO2 reduction required by 1993 and a second 6 million tons by 1998. Inclusion of a first phase requirment will get reductions underway early with obvious environmental benefits.

5) inclusion of a provision to allow intra-utility system trading across state lines. Currently, most major utility power pools use central economic dispatch to hold down the cost of electricity to their ratepayers. With the advent of acid rain

controls, utility systems can save consumers 10-15% of the potential rate increase if they are allowed to design least cost controls for their system as a whole. Section 184(c) needs to be amended to permit such interstate trading.

Provisions to Restrict Future Growth in Emissions. Let me expand a little more on our concerns with section 183. As noted earlier, the requirement that each power plant when it reaches 30 years of age must meet a .9 lbs per million Btus emission rate dramatically increases the cost of acid rain compliance. It does this for two reasons: first, the .9 lb emission rate effectively bars the use of all eastern low sulfur coal and perhaps half of western low sulfur coal, since none of this coal can meet such a standard when burned directly. This means that plants in the central midwest, south and east must use scrubbers or other technological means to meet the standard, thereby driving up the cost. Second, the plant-by-plant emission standard means every plant must comply - the advantages of the flexible statewide least cost approach found in the heart of S. 321 are effectively negated by this provision. States and utilities who took the least cost approach to comply with the initial 12 million ton reduction requirement would simply be forced to reverse their field and turn to scrubbers in most situations.

In addition to the cost considerations, this provision is questionable from an environmental standpoint. It does not achieve any additional emissions reduction beyond what would be achieved by the basic 12 million ton SO2 emission reduction requirement. What's more, by forcing the use of scrubbers, it dramatically increases our country's waste disposal problem. For every ton of SO2 removed from stack gases through the use of wet limestone scrubbers, we generate three tons of limestone sludge. If ten million tons of SO2 are removed via scrubbers, we will face the problem of disposing of 30 million tons of limestone sludge each year. We don't need to create new environmental problems at the same time we're trying to stop the ravages of acid rain. Nor does the provision help to hold down future emissions growth, despite the heading, Special Rule for Growth, of this section of the bill. In fact, use of scrubbers carries a 3.5% energy penalty to utilities. In other words, 3.5% more electricity is needed to run the scrubbers. A 3.5% increase in electricity demand will result in a concomitant increase in SO2 emissions. So, this provision may actually increase out-year emissions rather than holding them down.

As you know, section 183 gives states the option of complying with either the 30 year .9 lb provision or an absolute cap on all emissions which shrinks as older plants retire. I believe a cap is a much better approach to controlling future growth in emissions, but as I noted earlier, a cap limited to existing sources makes much more sense. Existing plants in the lower Midwest are currently operating at rates as low as 50% of capacity. The potential clearly exists for increases in emissions from these plants after achievement of the 12 million ton reduction in 1996. In contrast, the potential for increases from new plants is fairly small. EPA/ICF estimate that new sources will add 3-400,000 tons of SO2 emissions by the year 2000. If new source performance standards are tightened administratively between now and 2000, this increase will be even smaller. Under these conditions, it seems hard to make the case that we need a cap on all sources. Yet for a growth states like the Carolinas, Florida, and Texas, such a cap could be quite onerous.

Northeast - Midwest Power Interconnection. As a conclusion to my remarks this morning, I would like to outline to you a proposal to help solve the acid rain problem through cooperation between the midwest and the northeast. Governor Arch Moore of West Virginia and I have championed the idea of building a new transmission line to carry 1000 megawatts of excess power in the lower Midwest to New England. Because of New England's concern about acid rain, we have included a novel idea as a part of the proposed sale. Purchasers of the power in the northeast would bear the costs of both the construction of the power line and the capital costs of installing scrubbers on 2,000 megawatts of capacity in the midwest. The installation of scrubbers on twice the capacity of the sale would insure that sulfur dioxide emissions would be reduced by nearly 500,000 tons and would protect the jobs of approximately 2500 high sulfur coal miners in Ohio and West Virginia.

The Center for Clean Air Policy, a Washington-based think tank established by governors, has worked with ICF, Inc. in analyzing the economic impacts of this proposal. As part of a larger study of the costs of acid rain control to the American Electric Power system, the Center and ICF found that such a sale would result in a delivered price to New England of 4.6 cents per kilowatt hour in 1995 and 7 cents per kwh in the year 2000. This compares very favorably with CBO's estimate of 1995 average electricity costs of 8 cents per kwh for New England. In short, this proposal offers benefits to both regions - more demand for excess power and protection of coal miners' jobs in the midwest and lower energy costs and reduced acid rain in the northeast. It has the added advantage of being easily combined with any federal acid rain legislative proposal. When combined with an acid rain law, it offers the opportunity to Ohio and West Virginia to protect a significant number of coal miners jobs without increasing the cost of complying with the acid rain law above what the cheapest cleanup strategy would require. The Center will be releasing the full study to the public sometime next month.

Conclusion. Mr. Chairman, thank you again for the opportunity to appear before you today. I particularly appreciate the Committee's courtesy in arranging the schedule for this hearing. I want to conclude by noting that we have a great opportunity to break the congressional deadlock on this issue this year. The combination of S. 316 and S. 321 could produce a bill with broad support in the Senate and in the Congress. We in the Alliance stand ready to help you in any way we can to achieve our shared goal of enacting cost-effective acid rain legislation.

HEALTH EFFECTS OF
EXPOSURES TO AIR POLLUTION
AND ACID PRECIPITATION PRECURSORS

Testimony presented to
The United States Senate Committee
on Environment and Public Works

by

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BACKGROUND

A wide variety of manmade particles and gases exist in the ambient environment. Some of these pollutants are also associated with the formation of acid rain. A significant fraction of these acid precipitation precursors are due to emissions from fossil fuel combustion. Upon release into air through condensation, evaporation, and chemical transformation, these pollutants go through complex changes which affect their composition and toxicity to humans. Therefore, for population based health studies, chemical and toxicologic characterization of gases and airborne particles become more complicated than in studies conducted under laboratory conditions.

Animal studies offer the opportunity for controlling most of the experimental and environmental parameters and they also provide important insights into mechanisms of action. However, extensive data bases from these studies are often lacking, and extrapolation between species poses significant technical challenges.

Controlled human studies are usually relevant only to subgroups of populations (e.g. young adults, asthmatics, etc.) and lack information on complex mixtures of pollutants. Most important, frequency and duration of exposures in controlled human studies are not representative of most short- or long-term ambient exposures to toxic pollutants.

In contrast, observational epidemiology as a high degree of relevance to population-based health effects investigations. Quantitative risk assessment for air pollution relies on health damage estimates derived from epidemiology. Although it does offer great advantages for health risk assessment, observational epidemiology also has certain shortcomings (Ozkaynak and Spengler, 1985).

To examine the potential health effects associated with exposures to airborne particles, six years ago a multidisciplinary study was initiated at the Harvard University Energy and Environmental Policy Center. Between 1981-1985, this research was sponsored by the U.S. Department of Energy (DOE) Health and Environmental Risk Analysis Program (HERAP). Although most of our research was aimed at reducing existing uncertainties in estimates of health effects through both toxicologic and epidemiologic investigations, special emphasis was placed on epidemiologic assessments utilizing new methods and recent data bases. The unique data bases developed during our DOE/HERAP study have subsequently been extended and reanalyzed under the sponsorships of environmental organizations at federal (U.S. EPA-OPA, OAQPS, EMSL and ECAO), state (Massachusetts DEQE), and international (Health and Welfare--Canada) levels.

In the following, principal findings are summarized from our recent assessments on air pollution health effects derived from epidemiologic studies utilizing the latest mortality, morbidity and aerometric data bases.

FINDINGS FROM RECENT EPIDEMIOLOGIC STUDIES

As discussed in detail in Ozkaynak et al. 1986a and in Ozkaynak and Spengler 1985, predictions regarding the extent of association between air pollution and human mortality or morbidity are hampered by data base limitations as well as methodological difficulties. Only after careful consideration of the most relevant sources of error and utilizing improved exposure estimates is it possible to develop reliable health risk coefficients through epidemiologic analyses.

The research recently conducted at the EEPC has focused on major analysis limitations and has attempted to account for any of the major deficiencies primarily associated with the aerometric or exposure data sets. In particular, our approach has been to improve upon the definition of human exposures to ambient particulate matter by employing more physiologically relevant exposure indices, than the more commonly employed Total Suspended Particulate Matter (TSP) mass measure. Our analyses have often included fine particles (FP), sulfates (SO_4) or sulfuric acid (H_2SO_4) concentration measurements for characterizing population or personal exposures.

Because extrapolations from the published literature did not allow for accurate characterization of particle health risks, we have also used in our analyses additional data sets. Among the principal data sets gathered for use in our research were: EPA's Inhalable Particle Monitoring Network (IPMN), National Center for Health Statistics (HIS) and NHANES files, mortality and air pollution records for New York City and Los Angeles, the latest vital statistics data for the entire U.S. and lung function and aerometric data from a recent Canadian study. In some instances, we had to utilize additional existing data sets to support our health effects investigations (e.g., visibility and meteorological data for many airports in the U.S., EPA's NASN/SAROAD pollution files, etc.). All of these data were then screened and processed in a form best suited for exposure and health risk investigations.

Considering a number of methodological refinements and incorporating the necessary extensions to the pollution data sets, we were then able to apply statistical risk analysis techniques to the presently available data sets with confidence.

The principal results summarized below were obtained from the latest health effects assessment activities of the Harvard/EEPC scientists. In particular, we discuss results from our assessments on the mortality and morbidity effects of air pollution in the following categories:

- Mortality Effects of Air Pollution
  - cross-sectional mortality analysis using 1980

vital statistics and air pollution data
- time series mortality analysis using 14 years of daily mortality and air pollution records from New York City
- time series mortality analysis using 10 years of daily mortality and air pollution records from Los Angeles

* Morbidity Effects of Air Pollution
- analysis of the 1979 NCHS Health Interview Survey (HIS)
- analysis of respiratory symptoms and pulmonary function data from a study of children at a summer camp in Canada

A brief description of the recent work and key findings the mortality and morbidity effects of air pollution are provided below. Detailed discussions on these and related research can be found elsewhere (Ozkaynak and Thurston, 1987; OzKaynak et al., 1986a, 1985a; Evans et al., 1984; Ozkaynak and Spengler, 1985; and in Ozkaynak and Spengler, 1986).

CROSS-SECTIONAL MORTALITY ANALYSIS

Cross-sectional analyses of mortality during a specific time interval (e.g., during a given year) provide a means by which to search for an air pollution mortality relationship. Many investigators have adopted this type of epidemiologic analysis of vital statistics data, perhaps most notably Lave and Seskin (1977). Their analysis of data for 117 SMSAs (Standard Metropolitan Statistical Areas) from 1960 showed significant, positive associations between mortality and TSP, and TSP sulfates. Our review of the relevant cross-sectional mortality literature and reanalysis of Lave and Seskin's 1960 data confirmed the positive associations that Lave and Seskin described (Evans et al., 1984).

In an attempt to address the limitations of previous studies we conducted new analyses by which we used recent data (1979-1982) on inhalable particle (IP) and fine particle (FP) mass from EPA's Inhalable Particle Monitoring Network (IPMN) data base.

In our recent analysis, reported in Ozkaynak and Thurston (1987), we analyzed the 1980 U.S. vital statistics and available ambient air pollution data bases for sulfates and fine, inhalable, and total suspended particles. Using multiple regression analyses and accounting for the important confounding factors, we conducted a cross-sectional analysis of the association between alternative particle measures and total mortality. Results from the various analyses indicated the importance of considering particle size, composition, and source information in modeling of particle pollution health effects. Of the independent mortality predictors considered, particle exposure measures related to the respirable and/or toxic fraction of the aerosols, such as fine particles and sulfates, were most consistently and significantly associated with the reported SMSA-specific total annual mortality rates. On the other hand, particle mass measures that included coarse particles (e.g., total suspended particles and inhalable particles) were often found to be non-significant predictors of total mortality. This analysis indicated that typically 5% of the annual total mortality was associated either with ambient sulfate or fine particle pollution.[1]

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[1] These effects can not be added because of surrogate behavior.

TIME-SERIES ANALYSIS OF NEW YORK CITY DATA

A second component of research at Harvard on the mortality effects of air pollution has been a reanalysis of studies examining the relationships between day-to-day fluctuations in air pollution levels and coincident fluctuations in mortality rates. This work, which began with initial sensitivity analysis was subsequently extended to include a complete reanalysis of the 14 years (1963-1976) of data for New York City.

Fundings from our recent analysis of 14 years of daily mortality and air pollution in New York City were consistent with those previously reported in Schimmel (1978). Our analysis indicates that overall, 2% to 4% total excess deaths are estimated to be due to air pollution. In particular, measures or indicators of fine particle pollution [coefficient of Haze (COH) and aerosol extinction coefficient (b_{ext})] were often found to be significantly associated with the observed daily mortality. These relationships remained unchanged even after accounting for the effects of weather variables on mortality. Furthermore, this time series analysis appears to corroborate the results from cross-sectional mortality studies and indicates that fine particulate air pollution, even at current levels, could be of concern for public health.

TIME-SERIES ANALYSIS OF LOS ANGELES DATA

Most recently we have analyzed 10 years (1970-1979) of daily mortality and pollution data from Los Angeles County. The pollution and weather variables included in our time-series analysis were: sulfur dioxide (SO_2), ozone (O_3), nitrogen dioxide (NO_2), (fine) particle measures (KM and b_{ext}), temperature and relative humidity. In this study, formal time-series methods were applied to the detrended data sets. Analysis of the entire data set indicated that temperature and NO_2 pollution variable were significantly associated with daily mortality. Although the ozone variable was found to be associated significantly with daily mortality in some of the yearly regressions, it was found to be only marginally associated with daily mortality in the full data set.

ANALYSES OF PULMONARY FUNCTION AND AEROMETRIC DATA FROM A CANADIAN SUMMER CAMP STUDY

Between June 29 and July 10, 1983, the Health Protection Branch of Health and Welfare-Canada directed a 10-day health and air pollution study at Camp Couchiching, 12 km north of Orillia, Ontario. Lung function tests were taken from a group of 23 asthmatic and 29 nonasthmatic children twice each day, and a health questionnaire was administered after each pulmonary test period. The pulmonary maneuvers were taken by trained interviewers using computer-assisted, automated, dry-rolling seal spirometers. Lung function data obtained during this short-term study included: forced vital capacity (FVC), forced expiratory volume after one second (FEV_1), peak expiratory flow rate (PEF), and various ratios of these parameters.

The objective of the Harvard analysis was to use the information derived from the study in developing and testing unified models with lung function performance data and meteorological, diary, and air pollution data. Time-series regression models were then used to estimate the coefficients for selected, meteorological, aerometric or symptoms variables. The main purpose of these modeling analyses of the data was to determine the effects of air pollution and meteorological factors on the observed lung function measurements. Analyses techniques and findings from these investigations are discussed more completely in Ozkaynak et al., 1985b. The key results from the statistical analysis of the Camp Conchiching data were:

*Estimated (mean) decremental effect of total air pollution on the lung function measures studied were typically greater than 3%.

- *(lagged) fine particle exposure variable (i.e. fine particle concentration in the previous 12 hours) was the most consistent and often significant predictor of the decremential effects of air pollution on measured lung function.

- *One hour maximum sulfuric acid concentration (Max. H_2SO_4) was significantly and negatively associated only with REPFEV for the non-asthmatics and PEF for the asthmatics.

In conclusion, the statistical analyses of the Lake Couchiching health and aerometric data provided both interesting results and insights into future studies. Most of all, the findings from these investigations suggested that such studies on camp children are a valid means of assessing short-term effects of air pollution under semicontrolled conditions.

MORBIDITY EFFECTS OF AIR POLLUTION FROM THE NATIONAL HEALTH INTERVIEW SURVEY

To study the associations between ambient pollution and human disability, we analyzed the 1979 National Health Interview (HIS) of the National Center for Health Statistics (NCHS). The 1979 HIS provided a data base on individual level health status for approximately 100,000 people. The 1979 survey used a two-week reference period for the health questions and collected a variety of socioeconomic and demographic information. The survey also included a detailed questionnaire on smoking habits for adults given to one-third of the sample. In our recent analysis of this data, we used the HIS outcomes of total number of restricted-activity days (RAD) and work-loss days (WLD) as well an another disabiity variable, minor restricted-activity days (MRAD), and related them to particle exposures in 12 different large SMSAs. The main results from our preliminary analysis of the 1979 HIS data were that the fine particle variable seemed to be a significant predictor of Minor Restricted Activity Days in some of the regression models. In general, however, the association between the pollution variables (sulfates, ozone and TSP) and the disability indicators RAD and MRAD were often statistically non-significant. Further analysis and model refinements will be useful to examine the general representativeness of these initial results.

CONCLUSION

Quantitative estimation of the relationships between current levels of ambient pollution and human morbidity or mortality is hampered by the limitations of the available data bases. However, in recognizing these concerns and addressing some of the important problems, we were successful in conducting epidemiologic investigations suitable for estimating the likely range of the mortality and morbidity impacts of air pollution.

Findings from our recent epidemiologic analyses indicated that variations in ambient FP and SO_4 mass are indeed more important to public health than variations in the levels of particle pollution measures which also include coarse particles such as TSP or IP. In particular, sulfates and FP mass were often very significant predictors of variations in residual mortality throughout the U.S., even after controlling for socioeconomic factors. Analysis of 14 years of daily mortality in air pollution in New York City also corraborated these findings, namely, measures or surrogates for fine particle mass were found to be significantly associated with observed mortality.

As discussed in Ozkaynak et al. (1983) and Thurston et al. (1984), it is especially the fine particle fraction of ambient aerosols that includes carcinogenic or toxic trace metal, organic and acidic components resulting from automobile, oil and coal combustion emissions. Moreover, fine particles of sulfate and acid aerosols can readily be deposited in the human lung, and with long residence times, thereby increasing their damage potential.

Our finding of positive air pollution health effects are also supported by other epidemiologic studies and analyses performed in different age groups (c.f. EPA 1986).

A major prospective health effects study is being conducted by the Harvard School of Public Health (HSPH), to examine the relationship between air pollution and respiratory health status of children living in six cities in the eastern and midwestern United States. Findings reported in Ware et al., 1986, indicate that across the six cities, frequency of cough was significantly associated with the average of twenty-four hour mean concentrations of all three pollutants (sulfur dioxide, sulfate fraction of TSP and TSP) during the year preceding the health examination. Furthermore, rates of bronchitis and composite measure of lower respiratory illness were also found to be significantly associated with average particulate concentrations.

Again, using the Harvard School of Public Health Six Cities Data Base, Dockery et al., 1982, reported statistically significant changes in pulmonary function of school chidren in Steubenville, OH associated with air pollution episodes. Results from Dockery et al. 1982 suggests that small, reversible changes in pulmonary function can occur as a consequence of increased concentrations of TSP and SO_2.

Recently another analysis was reported in Kinney, 1987, based on the component of the HSPH Six Cities Study being carried out in Kingston, Tennessee over a three-month period in late winter/early spring 1981. Pulmonary function measurements were taken at roughly weekly intervals on a group of 154 school children along with concurrent ambient monitoring for gaseous and particulate pollutants. The analysis conducted typically consisted of fitting child-specific linear regressions of pulmonary function on pollution concentrations. Pollution variables included in the analysis were: ozone, fine particles, and fine sulfates. It was shown in Kinney (1987) that the mean population slope for each pulmonary function variable regressed on ozone was negative and statistically significant, thus suggesting an effect. However, fine particles and fine sulfates were not found in general to be associated with lung function, nor were they found to be correlated with ozone.

Studies of air pollution effects on the elderly are quite sparse. However, some of the cross-sectional mortality analysis for the population age-group 65 and over have suggested significant pollution effects on males and females aged 65 and over. In this age group using 1970 vital statistics and pollution data, Lipfert (1984) showed a significant association between sulfate variable and mortality in one of his regression models. Mendelsohn and Orcutt (1979) also showed a significant sulfate effect on cross-sectional mortality of population age 65 and over, due to illness, with data from the same time period.

The most important conclusion that can be derived from all of the eipdemiologic investigations we have performed is that air pollution, especially particulate pollution, even at current levels, could be of concern to public health in terms of its contribution to excess mortality and morbidity. In every epidemiologic investigation that we have performed over the past six years, we have repeatedly found a 2% to 5% air pollution effect on human mortality and morbidity. We find it very difficult to reject these consistent findings, based on arguments sometimes raised about the possible influence of systematic errors or omitted confounding variables which may be uniformly biasing all our results. Moreover, due to various types of uncertainties associated with the prediction of personal exposures to the toxic pollutants, even a lack of a demonstrated effect from an epidemiologic investigation should not be interpreted as a proof of the "null hypothesis" (i.e. no health effect).

Furthermore, the statistical bias due to misclassification of exposures typically results in lower estimates of relative risk and reduced precision in conventional studies of observational epidemiology (Ozkaynak et al., 1986). Thus, due to limitations of both sample size and information on "true" (personal) exposures to toxic components of ambient aerosols, it is likely that for certain pollutants we have not yet been able to detect measurable health effects or statistically significant exposure-response associations (Ozkaynak and Spengler, 1985).

It is important to note some of the implications of our research findings to future environmental research and policy decisions regarding pollution control. Over the last decade, emission controls, relocation of facilities, changes in the available fuel has gradually reduced TSP levels and decreased the sootiness of the aerosols in most urban areas in the U.S. In contrast, however, ozone (O_3) concentarions and the concentrations of fine particles (FP) and sulfates, which may represent an important toxic component of airborne particles, have not decreased.

In order to refine our present estimates of air pollution health effects, it is important to continue to collect and analyze exposure and response data on acidic aerosols and oxidants that are involved in the production of toxic particles and acid precipation. In the meantime, however, it seems that it will be prudent to develop environmental and public health policies based on the collective evidence from epidemiological studies, which indicate that the current pollution levels in the U.S. are likely to cause premature mortality and human morbidity.

REFERENCES

Dockery, D.W., J.H. Ware, B.G. Ferris, Jr., F.E. Speizer, N.R. Cook and S.M. Herman (1982) Change in pulmonary function in children associated with air pollution episodes. JAPCA, 32;937-942.

Evans, J.S., T. Tosteson and P.L. Kinney. (1984). Cross-sectional Mortality Studies and Air Pollution Risk Assessment, Environ. Int. 10:55-83.

Kinney, P.L. (1987) Short-term pulmonary function associations with ozone in Kingston, Tennessee, Ph.D. dissertation, Dept. of Environmental Science and Physiology, Harvard School of Public Health, Boston.

Lave, L.B. and E.P. Seskin. (1977). Air Pollution and Human Health. Baltimore. Johns Hopkins University.

Lipfert, F.W. (1984). Air pollution and mortality: specification searches using SMSA-based data. J. Environ. Econ. Manag., 11:208-243.

Mendelsohn, R. and G. Orcutt. (1979). An empirical analysis of air pollution dose-respnse curves. J. Environ. Econ. Manag. 6:85-106.

Ozkaynak, H., and G.D. Thurston. Associations between 1980 U.S. mortality rates and alternative measures of airborne particle concentration. (1987). Forthcoming in Risk Analysis.

Ozkaynak, H. and J.D. Spengler. (1986). Health Effects of Airborne Particles. Energy and Environmental Policy Center (EEPC) Discussion Paper No. E-86-04, Harvard University, February (1986).

Ozkaynak, H., J.D. Spengler, A. Garsd, and G.D. Thurston. (1986a). Assessment of population health risks resulting from exposures to airborne particles. Peer-reviewed chapter in the Proceedings of the 2nd US-Dutch International Symposium on Aerosols, Williamsburg, Virginia, May (1985).

Ozkaynak, H., P.B. Ryan, J.D. Spengler, and N.M. Laird. (1986b). Bias due to misclassification of personal exposures in epidemiologic studies of indoor and outdoor air pollution. Environment International, 12:389-393.

Ozkaynak, H. and J.D. Spengler. (1985). Analysis of health effects resulting from population exposures to acid precipitation precursors. Environ. Health Perspectives. 64:45-55.

Ozkaynak, H., J.D. Spengler, G.D. Thurston, A. Garsd, T.D. Tosteson, S.D. Colome, C.M. Smith, B. Burbank, J.S. Evans, and W. Skornik. (1985a). Analysis of Health Effects Resulting from Population Exposures to Ambient Particulate Matter. Health and Evnironmental Effects Document. Prepared for the U.S. Department of Energy, September.

Ozkaynak, H., B. Burbank, A. Garsd, and J.D. Spengler. (1985b). Statistical analyses of the Lake Couchiching health and aerometric data: phase II report. Prepared for the Department of National Health and Welfare of Canada. January (1985).

Ozkaynak, H., G.D. Thurston, T.D. Tosteson, C.M. Smith, P.L. Kinney, B. Beck, W. Skornik, S.D. Colome, and A.S. Schatz. (1983). Analysis of health effects resulting from population exposures to ambient particulate matter. Health and Environmental Effects Document and appendices (I-III). Prepared for the U.S. Department of Energy.

Schimmel, H. (1978). Evidence for Possible Acute Health Effects of Ambient Air Pollution from Time Series Analysis: Methodological Questions and Some New Results Based on New York City Daily Mortality, 1963-1976. Bull. NY Acad. Med. 54:1052-1108.

Thurston, G.D., H. Ozkaynak and A. Schatz. (1984). A Chemical Characterization and Source Apportionment of the IP Network Fine Particle Data, presented at the 77th Annual Meeting of the Air Pollution Control Association, San Francisco, CA.

U.S. Environmental Protection Agency. (1986). Second Addendum to Air Quality Criteria for Particulate Matter and Sulfur Oxides (1982): Assessment of Newly Available Health Effects Information. Office of Health and Environmental Assessment; EPA report No. EPA/600/8-86/020F.

Ware, J.H., B.G. Ferris, Jr., D.W. Dockery, J.D. Spengler, D.O. Stram and F. E. Speizer. (1986). Effects of ambient sulfur oxides and suspended particles on respiratory health of preadolescent children. Am. Rev. Resp. Dis. 133:834-842.

Testimony of
Western Energy Supply & Transmission
(WEST) Associates

before the
Environmental Protection Subcommittee
of the
COMMITTEE ON ENVIRONMENT & PUBLIC WORKS

United States Senate
Washington, D.C.

Presented by:
SCOTT MATHESON

June 17, 1987

I am Scott Matheson of Parsons, Behle and Latimer in Salt Lake City, Utah, and I wish to thank the Committee for this opportunity to testify. I am representing Western Energy Supply & Transmission (WEST) Associates, a research and planning group of 20 publicly and investor owned electric utilities serving approximately 19 million consumers in the western and southwestern United States. In my remarks today I will provide brief summary comments on key specifics regarding eight clean air bills before this Subcommittee. But before discussing specifics, WEST believes that any air quality legislation must address certain fundamental principles. We are seriously concerned about any legislation that ignores these principles.

In summary, there are four principles that WEST believes must be recognized in any sound legislative proposals, including those currently before this Subcommittee:

1. Unique regional differences must be fully recognized, including the nature and density of emissions and the level of pollution control already achieved.
2. Responsibility for the cost of emission reductions should be incurred in relationship to contribution to the problem. The costs of emission reduction should not be spread over the country through an across-the-board national tax or fee.
3. Least-cost methods of meeting any necessary emission reduction targets should be used.
4. Control efforts should be applied only where demonstrated significant problems exist and the emission reductions will result in air quality benefits. Decisions of this nature can only be made in full consideration of the most recent scientific research findings.

I will now briefly summarize some of the western U.S. facts related to these principles.

Regional Differences:

As I testified before the full Committee on September 30th of last year, western power plants currently emit only 2% of the nation's SO_2 and

4% of the nation's NO_x. More than four times as much electric generation is scrubbed for SO_2 in the West compared to the East (57% versus 14%). Ninety-eight percent of western coal-fired generation uses low sulfur coal. Westerners already pay a premium in their electric rates for clean air.

The EPA has forecast total SO_2 emissions for the year 2000 in the West to be about the same as 1985 levels, much lower than levels in the 1950's and less than half of 1970 levels. According to WEST's best estimates, permitted utility SO_2 emissions alone will increase by only 1-2% above 1986 levels by the year 2006, despite an 18% increase in generating capacity. Likewise, even though EPA forecasts total NO_x emissions to increase by about 20% by the year 2000, WEST's estimates of permitted utility NO_x emissions show only about a 16% increase over the next 20 years.

Besides the regional differences in emissions, the western environment is significantly different from the East. The atmospheric deposition of acidic materials in the West is only 3 to 20% of that in the East. Rain acidity in the West is generally within natural levels and less than one-fifth that of the acidity in the East. A recently completed Environmental Protection Agency (EPA) water quality sampling program in both the eastern and western U.S. concluded that "chronic, regional lake acidification has not occurred in the mountainous areas of the West" and that there is no evidence of lake acidification in the West. Only one lake of 719 sampled in the West exhibited any acidity and that was due to a natural hot spring. This is in sharp contrast to the East, where about 10% of the lakes in each of three different regions were found to be acidic.

No Across-the-Board Fees:

Any national fee collected to pay for pollution control systems unfairly discriminates against the West. Such a national fee ignores such facts and violates the principle that the responsibility for the cost of emission reductions should be incurred in relationship to contribution to the problem. A national fee ignores the fact that the 20 WEST members alone have spent or are committed to spend by 1990 nearly $3.5 billion for pollution control capital equipment. A national fee also ignores the fact that western utilities are already subject to some of the most stringent State imposed emission controls in the nation, far more stringent than federal limits.

Least-Cost Methods:

Least-cost methods for any emission control program are the only reasonable methods that should be required. Such methods include the possibility of fuel switching, emissions trading between states and among sources within a state (statewide bubbles), and using burner modifications where technically feasible for NO_x control rather than unproven control technologies attempted elsewhere in the world that may not be workable in the U.S.

Controls Applied Only Where Beneficial:

Initial control efforts should be applied only where demonstrated significant adverse effects exist or are likely. In addition, whatever controls are required, they must be related to the specific problem of interest. This principle also means that any contemplated acid rain control program must take advantage of the most recent research available. That is a significant and timely consideration now since the ten-year National Acid Precipitation Assessment Program (NAPAP) research effort will be complete in just two years.

In the West, scientific research continues to show that region-wide effects of acid deposition do not exist and none are expected at current levels of exposure. One of the most complete inter-disciplinary studies of acid deposition in the West, concluded that "region-wide effects of acid deposition do not exist in the West and none are expected at current levels." The conclusions of this study, which was commissioned by WEST Associates, are consistently supported by new federal, state, and private studies in the West.

Specific Legislative Proposals:

I will now address just a few specific points related to eight of the proposed bills before you. However, I will be very brief and will not address all points of concern to WEST Associates.

On September 30th of last year, I testified before the Committee and voiced some of the concerns of WEST Associates regarding S. 2203, the "New Clean Air Act." Since S. 300 is essentially the same as the previous S. 2203, I will not repeat my concerns here, but refer the Subcommittee instead to that written testimony, a copy of which is attached. S. 300 is a drastic legislative proposal which could cost western electricity consumers billions of dollars per year with little or no commensurate benefit. In its worse case, for example, one provision of S. 300 would affect only 3% of western SO_2 emissions but cost westerners as much as $4 billion in capital.

S. 321, the "Acid Deposition Control Act of 1987," addresses many of WEST's concerns related to S. 300. However, S. 321 continues to apply control provisions throughout the nation despite the fact that no acid deposition problem has been demonstrated in the West and none is expected. One of the provisions of S. 321 requires 30-year old plants to meet 0.9 pounds per million Btu emissions in 1996. This provision would affect only one percent of western generation, but would have essentially no effect on total western SO_2 emissions and yet cost western consumers $75 million per year. In addition, S. 321 requires NO_x reductions from all sources, regardless of their current emission levels. (This is in contrast to the methods used in S. 321 for SO_2 emissions). Since many power plants in the West already control NO_x emissions to levels more stringent than current Federal New Source Performance Standards, such additional reductions may be technically impossible. WEST Associates has long maintained that any legislation must acknowledge control systems already in place, not blindly apply additional restrictions that may be technically or economically impossible and will, in any event, not provide significant air quality benefits.

Turning to another proposed bill, S. 1351, the "Clean Air Standards Attainment Act of 1987", suffers from the additional problem that mandated control measures are, in some cases, non-specific. Power plants do not emit ozone or significant amounts of CO, the two pollutants of concern for nonattainment areas, but power plants are nevertheless affected by S. 1351. It is generally believed that many industrial processes emit ozone precursors -- hydrocarbons (HC) and oxides of nitrogen (NO_x). However, power plants emit almost no HC, and on a regional basis in the West, power plants are responsible for just one-third of the total NO_x emissions. In its most severe form, S. 1351 ignores these facts and mandates an emission penalty tax and an across the board per cent reduction in emissions from all sources, regardless of the source's contribution to the nonattainment problem. WEST has consistently opposed such uniform "per cent reduction" strategies. (This provision comes into play only if the 5-year extension will still be missed.)

S. 1351 also attempts to establish new ambient air quality standards for new chemical constituents. This part of S. 1351 is similar to S. 787 and S. 796, the Health-protective Ambient Standard Act and the National Ambient Air Quality Amendments Act of 1987. WEST believes it inappropriate for the Congress to legislate specific new standards without the benefit of a thorough scientific review of the need for and appropriate level of those standards. Congress should do what it has consistently done in the area of air quality since the inception of the Clean Air Act: establish the goals for standards, e.g., protection of human health and welfare, protection of natural resources, etc., and then allow the Environmental Protection Agency to conduct the standard setting effort with full opportunity for thorough public and scientific review and assessment of the facts.

S. 1123, the "National Acid Deposition Reduction Act of 1987", also suffers from an attempt to arbitrarily set scientific standards. It establishes a definition for "sensitive and critically sensitive aquatic resources" by using a single water quality parameter -- acid neutralizing capacity (ANC). However, in its recent water quality survey, EPA explicitly stated that "ANC should not be construed as an accurate sensitivity index." This is especially true in the West where EPA found that "the level of acidity and chemical composition of western surface waters depends largely on interacting man-made as well as natural factors, such as bedrock geology, soil characteristics, lake sediment interactions, precipitation, deposition, and land use." In short, the scientific premise of the bill is fatally flawed when applied to the West -- ANC is not the appropriate index of western lake sensitivity.

S. 1123 also includes a provision for an emissions tax or fee, just as does S. 95, The National Acid Rain Control Act of 1987. Although basing the fee on emissions rather than electricity generation is some improvement, WEST is opposed to any fee that ignores the significant expenditures WEST members have already made to control emissions and the principle that cost should be incurred in relationship to contribution to the problem. S. 95 attempts to give credit by using a sliding scale based upon SO_2 emissions. However, the scale uses a minimum category of 1.2 pounds per million Btu or less. Since nearly all power plants in the WEST emit less than 1.2, this scale is no more fair to the West than a flat fee system.

The last bill I will discuss is S. 316, The Acid Deposition and Sulfur Emissions Reduction Act. Although there is still significant doubt regarding the scientific basis for any acid rain legislation, S. 316 is more consistent with WEST principles than other proposed legislation. It does not extend new and unnecessary control requirements into the western U.S. and it recognizes the significant pollution control efforts already achieved in the West and currently required for new plants under existing law. It also establishes controls on all sources of emissions, not just utility power plants. It requires NO_x controls that can be technologically achieved at least on some units. It also allows emission trading so that if necessary the utilities can apply their engineering skills to provide the best possible protection of the environment while minimizing the costs to the electric customers. It also provides for additional research, something that WEST Associates not only supports in testimony, but in actual fact, by funding some of the leading research into acid deposition in the West, even before EPA began studying the area.

Conclusion:

Mr. Chairman, I must come back to the fundamental principles of sound legislation that I discussed at the outset. First, unique regional differences must be fully recognized. Secondly, responsibility for the cost of emission reductions should be incurred in relationship to contribution to the problem -- acknowledgement and credit for control efforts already undertaken must be given. Thirdly, least cost methods of meeting emission targets should be used and available control techniques should be applied only where there will be resultant air quality benefits.

Many of the proposed bills before you fail some or all of these principles, and WEST Associates opposes enactment of such measures.

TESTIMONY OF EDWARD C. GIBBS
VICE PRESIDENT, UNION PACIFIC RESOURCES COMPANY
BEFORE THE
SENATE SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
WASHINGTON, D.C.
JUNE 17, 1987

Introduction

Mr. Chairman and Members of the Committee:

My name is Edward C. Gibbs. I am Vice President-Operations of Union Pacific Resources Company. Union Pacific Resources is the energy and mining subsidiary of Union Pacific Corporation. We mine low-sulfur coal in Wyoming and high-sulfur coal in Missouri. We also produce oil and gas in many states west of the Mississippi River and in Canada. So we understand the impacts that acid rain legislation will have on the energy business.

I appreciate the opportunity to testify here today on S. 321. As you know, our company was one of the first, and it remains one of the very few members of the business community to openly and actively support acid rain control legislation.

We support acid rain legislation because we believe it is inevitable, and because we see no reason not to start reducing the sulfur dioxide emissions (SO_2) that are thought to cause acid rain. In this regard, we recognize that the scientific evidence on this issue is not conclusive. But the National Academy of Sciences, congressional and other research organizations, and even the Administration through its Special Envoy, all agree that acid rain is a serious environmental threat. They also all agree that emissions of SO_2 are one of the main causes of acid rain.

Union Pacific Resources Supports Cost-Effective Legislation

While we support acid rain legislation, I want to emphasize that our support of specific acid rain bills is conditioned on one fundamental principle of good public policy: We feel very strongly that any new emission reduction program must be cost-effective. When I speak of cost-effective legislation, I mean legislation that allows maximum compliance flexibility -- legislation that gives those who know best, namely local utility managers, the freedom to choose from the widest range of pollution control options . . . and I want to emphasize here that there are many proven control options available today, including coal washing, blending fuels, fuel switching and "wet" and "dry" scrubbers.

Cost-effective, "freedom of choice" legislation will help guarantee that American consumers will get the most emission reductions for every extra dollar they spend on acid rain controls. They are entitled to that guarantee. Any acid rain control program will be very expensive. And we see no reason why American consumers should pay any more than they have to. They are entitled to get their money's worth.

For over five years, our company has supported cost-effective acid rain control bills. In the House, we support Congressman Cheney's bill, H.R. 2679. In the Senate, we support S. 316 sponsored by Senators Proxmire, Simpson and others. These bills represent examples of nearly ideal, cost-effective, freedom of choice legislation.

We were also among the very first to support your original acid rain bill, Mr. Chairman, and we supported it again last year, as S. 2200. We think the approach embodied in the bills you introduced in past sessions of Congress were models of cost-effective legislation.

Cost-Effective Bills Set Statewide Emission Targets

All of the bills I just mentioned share a common approach. Each sets statewide SO_2 emission reduction targets. Setting statewide emission targets gives the states maximum flexibility to design compliance plans. Statewide emission targets allow the states to use whatever mix of compliance strategies they choose. Given the choice, they will choose the most efficient mix of strategies to fit their own individual circumstances. The statewide emission targets in these bills promote cost-efficiency, because they offer states and utilities the greatest freedom of choice.

S. 321 Imposes a Plant-by-Plant Standard Instead of Statewide Standards

That brings me to S. 321. Mr. Chairman, we would like to tell you that we support S. 321, but we cannot. We must oppose S. 321 because it is not cost-effective. S. 321 is not cost-effective primarily because it imposes a plant-by-plant emission standard instead of relying on statewide targets.

Let me say right here that I do understand that S. 321 includes statewide SO_2 emission targets that must be met by 1996. But those statewide targets are irrelevant because of section 183(b). Section 183(b) says that whenever a power plant turns 30 years old, it must meet an emission limit of 0.9 lbs. SO_2/MM BTUs. It's important to remember that S. 321 is aimed primarily at power plants built before 1971. Most of those power plants will be 30 years old by 1996 -- and all the rest will turn 30 within a few years after that. As a practical matter, then, the statewide targets are meaningless because they are effectively superceded by the 30 year, plant-by-plant, 0.9 lbs. standard. In other words, Mr. Chairman, S. 321 sets two overlapping standards -- a statewide standard and a plant-by-plant standard. Of these two standards, the plant-by-plant standard is the less flexible and it is the one utilities will have to meet.

Plant-by-Plant Standards Cost More

The difference between statewide and plant-by-plant standards may sound like an arcane, technical distinction, but I assure you it is not. A plant-by-plant standard means the acid rain control program prescribed by S. 321 will cost much more than it should. Studies of other acid rain proposals show that plant-by-plant regulation costs between one and one half to three times as much per ton of SO_2 as statewide standards. That means consumers will have to pay much more than they would if the bill set statewide SO_2 emission goals. But they will get no additional environmental benefit for their money. S. 321 will cost more because the 0.9 lbs. plant-by-plant standard eliminates the use of the most economical SO_2 reduction strategies. In fact, the plant-by-plant standard in S. 321 is set so low that the only practical way to meet it is to use flue gas desulfurization units -- or "scrubbers."

Under the 0.9 lbs. plant-by-plant standard, utilities won't be able to use many of the lowest cost compliance strategies that they could use if the bill set statewide targets. For example, utilities won't be able to realize the full potential benefits of fuel-blending, fuel-switching or coal washing -- these are all proven and reliable strategies. Each could contribute to large, relatively low-cost reductions of SO_2 emissions on a statewide basis. But none of these strategies can play much of a role in meeting a 0.9 lbs. standard on a plant-by-plant basis.

The 0.9 lbs Standard Is Inconsistent With The Rest Of The Clean Air Act

The plant-by-plant standard also is totally out of sync with the rest of the Clean Air Act. For one thing, the 0.9lbs. standard is even tighter than the maximum limit allowed at brand new coal-fired power plants. New plants can emit SO_2 at 1.2 lbs SO_2/MM BTU's -- a 30% higher rate than S. 321 allows for old plants. We think this is unreasonable on its face. Usually the Clean Air Act works just the other way around. Usually new plants must be as clean or cleaner than old ones. One reason the Clean Air Act requires new plants to be cleaner is that, generally speaking, most pollution control options are less expensive to design and install at new plants than they are to retrofit at old ones. By putting a tougher standard on old power plants, S. 321 is legislating inefficient future SO_2 control investments. It virtually guarantees that utilities will have to pay top dollar for every ton of SO_2.

Acid Rain Is No Excuse To Try To "Fine Tune" Coal Markets

It has been suggested, Mr. Chairman, that the 0.9 lbs. plant-by-plant standard in Section 183 bill was added to S. 321 in order to "stabilize" future coal markets. Some say that the 0.9 lbs., standard is intended to discourage fuel switching as a compliance option. It is said that the 0.9 lb. standard will help guarantee high-sulfur coal a steady share of expanding future coal markets.

We do not know if the 0.9 lbs. standard was inspired by any such thoughts. But just in case that is a consideration, I would like to close my testimony with two thoughts about attempts to legislate coal markets.

Inefficient Legislation May Actually Shrink Future Coal Markets

First, any legislation that makes burning coal more expensive threatens the prospects for growth of the entire coal industry. It's important to understand that many of the proposals to "fine tune" coal markets that have been devised up here on Capitol Hill are based on econometric computer models. These models, useful as they are for some purposes, cannot predict the future. They are no better or worse, than the assumptions they are based on. Change the assumptions and the predictions will change too.

One crucial assumption in these computer models is the price of oil and gas. These models predict that the demand for coal will grow in the future because they assume oil and gas will always be priced higher than coal. But you can surely understand that if the differential between gas and coal prices narrows much more than it already has, then any major increase in the cost of burning coal will cut sharply into future utility demand for coal. In other words, adding extra costs to acid rain legislation in order to "fine tune" coal markets, could very well "tune" coal right out of future utility markets altogether. So legislative efforts to "stabilize" coal markets could wind up destabilizing the entire coal industry to a much greater extent than cost-effective legislation would.

Past Coal Market Legislation Has Boomeranged

Second, it's worth remembering that past efforts to "fine tune" coal markets have had a very poor environmental track record. In fact, the growth in SO_2 emissions at old power plants -- the very problem S. 321 is aimed at -- is the direct result of earlier efforts to "fine tune" coal markets. Some members of this Committee will remember that the "percentage reduction" requirement was added to the Clear Air Act in 1977 to protect high-sulfur coal markets and to prevent new power plants from using low-sulfur coal to reduce SO_2 emissions. Since all new plants have to reduce SO_2 emissions by a percentage, the "percentage reduction" requirement effectively requires all new power plants to use scrubbers. This high cost scrubbing requirement makes new coal-fired power plants so expensive that utilities have continued to use plants built before 1977 much longer than they originally planned to. Today's higher SO_2 emissions from old power plants are thus the direct result of this market-tuning legislation.

My point is simply this: efforts to legislate coal markets almost always boomerang. More often than not, they have unforeseen consequences that create problems that are usually worse than those they are designed to cure. In any case, they always saddle consumers and the economy with extra costs.

To sum up, the plant-by-plant standard in Section 183(b) is not cost-effective. It is not environmentally efficient. And it is at odds with the overall plan of The Clean Air Act. I want to urge you in the strongest way to drop this provision from your bill. The 0.9 lbs., plant-by-plant standard will not help the cause of acid rain legislation. It will surely drive away many friends and supporters who have counted on your leadership.

Thank you, Mr. Chairman, for the chance to share our views with the Committee. I'd be glad to answer any questions you may have.

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Testimony of
David G. Hawkins
NATURAL RESOURCES DEFENSE COUNCIL
before the
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
June 17, 1987

Thank you for the opportunity to testify once more on the need for Congress to pass acid rain control legislation. This year marks the sixth year and the third consecutive Congress that this Committee has considered acid rain control bills. The opponents of a new law have done an effective job of stalling needed action. They have challenged the scientific community's warnings about damages caused by acid rain, professed ignorance about the causes of the problem and exaggerated the costs of solutions. They have been aided and abetted by an Administration whose simple-minded chant has been "more research."

These delaying tactics have not made the issue go away. Nor has the additional research sought by the Administration provided any grounds for further temporizing. Yet the opponents of controls continue to make the same recommendation to Congress: wait a bit longer; don't act now.

As research has confirmed the fact that emissions of sulfur dioxide and nitrogen oxides unequivocally result in acidification of lakes and streams, accelerate damages to materials and ruin visibility, the opponents of controls have changed arguments rather than change their recommendations. This year the most popular arguments for delay include the following: there is still much scientific uncertainty and what we do understand suggests

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the problem may not be that severe. My colleague , Michael Oppenheimer, will address the errors in these claims.

A second line of argument is that better and cheaper ways to control the responsible pollutants are just around the corner and Congress should wait for these new technologies to emerge before passing a new law. In earlier testimony to the Subcommittee this year I have addressed these "clean coal" claims and I will not repeat those points here. The facts are that today's technologies can do the job effectively and the few "emerging technologies" that might complement our current cleanup methods will emerge faster under a law mandating cleanup than without such a law.

In today's testimony I would like to focus on two other arguments being made with increasing regularity. The National Coal Association (NCA) and some other groups claim that emissions are declining "naturally," the implication being that the problem of acid rain will go away even without any new control program. EPA does not agree with NCA's predictions of continuing reductions but the Agency's official position on the need for a control law is the same as NCA's: there is no need to act now. Underlying the Agency's recommendation for inaction is the implicit claim that the risks resulting from further delay are small and acceptable.

Thus, the Administrator has described predicted increases in emissions in as soothing terms as possible. In his April 22 testimony to this Subcommittee Administrator Thomas stated: "we expect SO_2 emissions during this century to vary between current levels and a 10 percent increase. We expect NO_x emissions to rise no more than 15 percent over the same time period." The Administrator concluded with the following: "I see no compelling need for any near-term amendments to the Clean Air Act to require acid rain controls, given our current lack of understanding of either the quantitative nature of the problem or the quantitative benefits of any particular acid rain proposal, and given the research results we expect to see in the next one or two years."

In effect, both NCA and EPA recommend that Congress "take two aspirin and call them in a few years." We submit that this complaisant prescription ignores the facts.

Utility Plant Pollution Trends

Regarding pollution trends, NCA is wrong in trying to paint a picture of steadily declining emissions. Over the past year, NCA has distributed reports calling attention to an approximately 6 percent reduction in SO_2 emissions from coal-fired electric utility plants between 1980 and 1986. From this estimate NCA has attempted to fashion an argument that there is no need for legislative action to reduce emissions. There are several problems with this line of reasoning.

First, we have no real confidence that 1986 emissions are in fact 6 percent less than 1980 emissions for the simple reason that our emission estimating procedures are too crude to permit calculations with such precision. With a relatively minor exception at scrubber-equipped plants we do not measure SO_2 emissions from utility plants in this country. Rather, fuel suppliers and/or utility operators analyze samples of coal for sulfur content and then report their estimates of expected average SO_2 emissions for periods ranging from 24-hours to three-months. The government has made only limited attempts to assess the accuracy of this indirect estimating approach. According to a draft 1986 report to EPA, estimates of the uncertainty surrounding any given year's estimated emissions range from 5 to 13 percent. Given these estimates of uncertainty, one must treat NCA's claim of a 6 percent reduction over six years with considerable caution.

Second, NCA's attempt to focus attention on the last six years of utility emissions, distorts the true picture of utility emission trends. Assuming there has been a slight decline in utility emissions since 1980, this decline has occurred only after a huge increase in such emissions over the previous thirty years. Focussing on the last six years alone gives as accurate a picture of utility SO_2 emissions trends as would an analysis of the Dow-Jones Index that looked only at the most recent two months and ignored the rise of the last two years.

According to EPA reports, in 1950 utility SO_2 emissions were between 4 and 5 million tons per year, about 20 percent of total national SO2 emissions from all sources. By 1980 utility SO_2 emissions had roughly quadrupled to 17 million tons per year, about 63 percent of total national emissions. This large increase in utility emissions relates directly to acid rain problems because utility plants release their pollutants high in the air, increasing the distance traveled by the pollution before it returns to earth. In 1950 only 6 million tons of SO_2 (27 percent of national SO_2 emissions) were released from stacks taller than 240 feet; by 1980 over 18 million tons of SO_2 (67 percent of national emissions) came out of stacks taller than 240 feet.

Thus, for the past thirty to forty years we have been burdening ever-expanding areas of our countryside with increased pollution loads from the utility industry's high stacks. Any slight decrease in these emissions since 1980 unfortunately still leaves this industry's SO_2 pollution levels nearly four times greater than they were in 1950.

Even more relevant than past emission trends are projected emissions in the future, for it is these future emissions that an acid rain control law can do something about. Based on the claimed emissions reductions since 1980, NCA argues that SO_2 emission totals will continue downward through 1990. More recently, NCA has even suggested that emissions will continue to decline during the 1990's. These assertions cannot withstand scrutiny. The bulk of the emission reductions that have occurred since 1980 can be attributed to specific state implementation plan compliance actions in a few states, notably reductions at the Tennessee Valley Authority plants in Kentucky and the expiration of variances in Michigan. Unfortunately, there are few if any additional significant state implementation plan compliance actions in the pipeline, so the 1980-1986 reductions do not represent a trend that will continue.

While NCA has articulated unsupported vague hopes for future emission reductions without a new acid rain control law, EPA has prepared detailed projections of emissions through the year 2010 if no new law is passed. The news is not good. Both SO_2 and NO_x emissions will continue to increase by significant amounts over this period. By 1995 EPA estimates utility SO_2 emissions will climb to 18.6 million tons per year, a 14 percent increase over 1985 levels; in the year 2000 the total will reach 19.6 million tons, a 20 percent increase from 1985; and by the year 2010, utility SO_2 emissions are projected to be 21.7 million tons per year, a 33 percent increase over 1985.[1] Similarly, EPA predicts a 30 percent increase in utility NO_x emissions over 1980 levels by the year 2000 and a 71 percent increase by 2010. The Subcommittee should note that these EPA projections show emission increases by the year 2000 that are twice as large as Administrator Thomas told the Subcommittee would occur in his April 22 testimony. I have attached a copy of EPA's forecast summary to my testimony.

EPA's forecast is not based on wild assumptions of rapid growth in electricity demand. Rather, EPA assumes moderate demand electricity demand growth of 2.2 percent annually from now through 1995 and 2.0 percent annually from 1995 through 2010.

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[1] Memorandum from ICF,Inc. to EPA, March 10, 1987: "Interim EPA Base Case Forecasts," at Table 1.

It is instructive to compare NCA's own projections of electricity demand through the year 2000 with EPA's for they reveal that NCA predicts greater amounts of coal-fired generation than does EPA. NCA predicts a 2.2 percent annual growth rate throughout the period 1984-2000 in its "moderate growth" case. [2] In addition, NCA predicts a greater reliance on coal-fired generation in the 1990's than does EPA. NCA forecasts 1.67 trillion kwh of coal-fired generation in 1995, rising to 1.88 trillion kwh in 2000.[3] These estimates are slightly higher than EPA's predictions for the same years of 1.58 and 1.78 trillion kwh respectively.[4] Thus, NCA's own predictions of coal use contradict its claim that emissions will decline.

In short, without acid rain control legislation the emissions problem will not go away. Over the next 25 years utility SO_2 emissions are expected to increase by 33 percent and NO_x emissions by 71 percent unless Congress acts.

The Costs of Delay

The second major claim that I would like to address today is Administrator Thomas' argument that there is no compelling need for action by Congress now. The central message the Administrator sought to convey in his April 22 testimony was that his Agency is unable to give Congress any usable estimate of the likely benefits of reducing acid rain causing emissions and that there is little risk that significant damage will occur if we wait until more research has been completed.

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[2] National Coal Association, Coal 2000, A Forecast for U.S. Coal by the National Coal Association, March 1986, Table III-2.

[3] Id. at Table III-10.

[4] EPA memo, supra note 1 at Table 1.

While the Administrator may believe that EPA is unable to provide any useful information on the benefits of reducing SO_2 emissions, EPA staff feels differently. They believe at least some of the benefits can be quantified now and they have done so in a May 1987 200-page draft "Regulatory Impact Analysis on the National Ambient Air Quality Standards for Sulfur Oxides." This "RIA" examines the effects on health and welfare of several alternative SO_2 standards, including one standard that would reduce U.S. SO_2 emissions by about 11 million tons per year -- a reduction comparable to a number of acid rain control bills.

The study lists 44 categories of potential benefits that would result from a significant reduction in SO_2 emissions and attempts to quantify the benefits for just 8 of the 44 categories. RIA, Table 5. The study examines both localized benefits due to reductions in direct exposures to SO_2 concentrations near emission sources and regional benefits due to a reduction in the transported sulfate conversion products of SO_2 emissions.

What is noteworthy about this study is that even though only a small fraction of potential benefits were quantified, very large economic benefits in these categories would result from an 11 million ton SO_2 reduction. The RIA estimates a low benefit of \$4.4 billion and a high benefit of \$6.5 billion each year in the few quantified benefit categories alone, with a midpoint estimate of \$5.2 billion a year. Over 96 percent of these calculated benefits result from reducing damages due to transported sulfate pollution, the very damages that would be lessened by adoption of an acid rain control law.

Specifically, \$2.4 billion of the benefits flow from reducing the economic costs associated with sulfate-related illness (lost wages and medical bills) and household soiling due to sulfate pollution. The study points out that this estimate may understate illness-related benefits by a factor of three because no attempt was made to place a value on reduced pain and suffering. An additional \$2.7 billion a year in benefits is estimated for improvements in visibility due to reductions in sulfate pollution.

Remarkably, these large benefit estimates do not include _any_ estimate of the value of reducing lake and stream acidification or of the value of reducing materials damages to industrial, commercial, and institutional structures. In addition, the above figures do not include any value for the reduction in mortality risks due to acid aerosol exposure, a benefit the study authors say is probable but that they chose not to quantify due to a wide range of estimates on the size of this health threat.

Thus, it is clear that EPA's study is only a very partial estimate of the benefits of reducing SO_2 emissions in a national acid rain control program. The economic values assigned to these benefits can and no doubt will be questioned by us and others. The instructive aspect of this study is not that it assigns a specific value to a few benefit categories. The study is significant because it demonstrates that despite the claims of the Administrator that it can't be done, the professional civil servants at EPA are willing and able to make admittedly rough but useful estimates of the magnitude of the damages caused by large atmospheric loadings of SO_2 and to quantify some of the benefits of rolling back that pollution.

The study also makes it clear that, contrary to the Administrator's implications, the country incurs real costs if Congress delays acid rain control programs to wait for more research. Recall that the EPA RIA study's midpoint estimate of the partial benefits of achieving an SO_2 reduction in 1990 is about $5 billion annually. This figure is a discounted figure, reflecting the effect of deferring cleanup benefits to a later year. If we could reduce emissions by 11 million tons today, the benefits estimates presented in the EPA study indicate that we would avoid over $9 billion in costs annually for just the few benefit categories quantified by EPA.

Thus, there are costs to legislative delay. People are experiencing billions of dollars of losses each year that Congress does not act. For the few categories of effects quantified by EPA, if the Agency's estimates are any guide, the American people have suffered over $50 billion in damages in the six years that Congress has debated whether to control acid rain. The truth is plain: further delay will mean more damages. It is time to move from debate to action. Our society let this junk be put into the air and we have the means to take it out.

Specific Legislative Proposals

I want to express strong support for two bills introduced by members of this Subcommittee: S. 300 and S. 321. Each of these bills provides a strong framework for dramatically curbing the damages due to acid rain.

S. 300, Senator Stafford's bill, has been characterized as "extreme." This term says more about those who utter it than about S. 300. Senator Stafford's bill says simply that the wealthiest country in the history of the planet should apply its technical knowhow to minimizing air pollution from major sources of pollutants that we know are harmful to health and the environment. It is a bill that if enacted would allow us to say to our grandchildren, "we may not have understood how badly we were messing up the world you would inherit but at least we used all the tools we had to limit the amount of pollution we produced." S. 300's objective is not an extreme one. It is the only prudent objective for a species that cannot predict its future understanding of the world and that has no moral right to limit the quality of life for future generations by failing to do all we can to clean up our act. We support S. 300 as an effective way of responding to acid rain and other major national air pollution problems.

S. 321, Chairman Mitchell's bill, while asking somewhat less than S. 300 in emission reductions, is a very strong bill that we also support. We understand and agree with the Chairman's belief that a bill which stops short of demanding the environmental ideal should garner a broader range support in the Congress from members who do not view the acid rain problem with the same concern that we do. For that reason we support S. 321. The bill requires a reduction of 12 million tons of SO_2 emissions and 4 million tons of NO_x emissions. The bill allocates cleanup responsibility fairly, giving credit for reductions already achieved or underway.

S. 321 also embraces the principle that no source should be immunized from applying emission controls in perpetuity. Under existing law as implemented by EPA, a source built before New Source Performance Standards (NSPS) were adopted is grandfathered from new cleanup requirements, no matter how long the source runs. While it is appropriate to provide source owners with a reasonable period of immunity from new source controls to permit amortization of original investments, there is no policy justification for making this a permanent exemption from control. S. 321 provides electric power plants with a reasonable 30-year period of immunity, after which they are required to meet a more stringent emission limit.

We must note that the 30-year limit in S 321 is not as demanding as today's NSPS. In addition, each state is given the option of agreeing to a ceiling on total statewide emissions in lieu of the 30-year source-specific limit. We understand the desire to provide this type of flexibility but we are concerned that in operation this provision would permit increases in total regional emissions over time. We hope to be able to work with the Subcommittee to find an acceptable way to address this concern.

Overall, S. 321 is a strong bill that we believe would result in a sound program to reduce acid rain damages.

Another bill that has received attention in testimony before this Subcommittee is S. 316, a bill offered by Senator Proxmire and other senators. We do not believe S. 316 represents an adequate response to the acid rain problem. I would like to highlight a few of the significant defects that we see in the bill.

First, the emission reductions required under S. 316 fall short of what is needed to restore many acidified waters, protect other sensitive waters, and minimize threats to other environmental and public health values. EPA estimates that by 1997, S. 316 would produce a net reduction from 1980 levels of only 6.6-6.8 million tons of SO_2 and no net reductions of NO_x from the utility industry.

Second, S. 316 divides the required reductions into two phases -- a feature that creates enormous program uncertainty and will jeopardize prompt achievement of even the bill's Phase I requirements. By creating a forum for industry to lobby EPA to relax the Phase II reduction requirements, S. 316 guarantees that industry will put more energy into reducing their pollution control obligations than into reducing their pollution.

The existence of a Phase II, with requirements that may be relaxed, invites universal jockeying for position by sources who will argue to state regulatory officials that their particular reductions should be scheduled for Phase II. The job of state agencies in allocating emission reduction requirements will be difficult enough even without a phasing procedure. S. 316 will, as a practical matter, force each state to justify each decision to place a source in Phase I rather than Phase II. Many states will find the job too hard and just give up.

Moreover, sources will argue that the uncertain scope of their emission reductions under Phase II of the bill will make it impossible for them to design an optimum compliance strategy for meeting their total emission control obligations. They will complain, "until we know what additional controls may be required of us five years hence, we cannot make a wise decision on how to comply with our Phase I control requirements." Accordingly, they will claim, the only reasonable policy is to delay all cleanup requirements until the Phase II requirements are settled.

In short, the phasing approach of S. 316 sets up a dynamic to change the program's requirements before it is even implemented. The most likely result of enacting S. 316's two-phased program would be to stimulate industry to come back to Congress within two years of enactment to urge that the entire law be amended. I suspect that most members would rather have the cicadas back in two years than to be forced to deal anew with acid rain amendments.

Third, S. 316 focusses control requirements only on the 31 eastern states. While we have uncovered little documented acid rain damage to date in the western states, we know that those states contain resources that are particularly sensitive to damages from acid-rain causing emissions. It is prudent policy to put in place now, legislation that protects the West from these damages. As the history of the acid rain debate demonstrates, passage of remedial legislation is not a simple and speedy process. Moreover legislation once passed takes time to implement. If Congress waits for a western "body count" before deciding to protect the West it is certain that significant damage to pristine western environments will occur before controls can be put in place.

Fourth, S. 316 preserves existing sources' immunity from NSPS requirements no matter how long they operate. The effect of this immunity will be to insure gradual increases in emissions over time due to growth in emission sources after the bill's initial rollback requirements have been achieved.

Fifth, S. 316 does not require new cars and trucks to apply state-of-the-art NO_x pollution controls. We believe that such controls are feasible and warranted as part of an overall response to the acid rain problem.

In conclusion, we believe Congress should act this year to begin a new program to combat acid rain. What we know about the problem demonstrates that emission reductions are needed and long overdue. There is virtually no risk that the future will show that embarking now on such a program was a waste of resources. The risks of further delay are identifiable and are very large; the costs and methods of cleanup are known and are reasonable. We ask this Subcommittee to lead the effort in this Congress to enact a strong acid rain control law.

TABLE 1

NATIONAL SUMMARY BASE CASE FORECASTS

	1980	1985	1990	1995	2000	2010
SO2 Emissions (millions of tons)						
Coal						
Existing[1/]	16.02	15.69	16.78	17.23	17.87	18.74
New	-	-	0.10	0.20	0.43	2.01
Total	16.02	15.69	16.88	17.43	18.30	20.26
Oil/Gas	1.36	0.58	0.89	1.14	1.32	0.93
Total	17.38	16.27	17.77	18.57	19.62	21.69
NOx Emissions (millions of tons)						
Coal						
Existing[1/]	5.44	NA	6.53	6.82	7.14	7.26
New	-	NA	0.16	0.26	0.65	3.52
Total	5.44	NA	6.70	7.08	7.79	10.77
Oil/Gas	1.18	NA	0.47	0.77	0.84	0.52
Total	6.62	NA	7.16	7.85	8.63	11.29
Utility Electricity Generation (trillions of kwh)						
Coal	1.16	1.40	1.50	1.58	1.78	2.79
Oil/Gas	0.59	0.39	0.22	0.38	0.44	0.29
Nuclear	0.25	0.38	0.61	0.62	0.62	0.46
Hydro & Other	0.28	0.30	0.41	0.48	0.53	0.58
Total	2.28	2.47	2.74	3.06	3.37	4.12
Coal Production (millions of tons)						
Northern Appalachia	185.1	161.5	174.4	179.9	187.8	258.0
Central Appalachia	232.8	244.8	244.3	282.4	330.4	406.9
Southern Appalachia	26.4	25.6	25.5	22.5	24.6	35.8
Midwest	134.6	133.3	130.8	124.8	142.6	175.0
West	251.0	315.9	389.6	428.3	479.2	777.2
Total	829.7	881.1	964.6	1037.9	1164.6	1652.9

[1/] "Existing" capacity defined as coal capacity which came on line prior to 12/31/85.

NA: Not Available.

Source: Memo from ICF, Inc. to EPA, March 10, 1987, "Interim EPA Base Case Forecasts."

ACE

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TESTIMONY OF HARRY L. STOREY
PRESIDENT, ALLIANCE FOR CLEAN ENERGY
BEFORE THE
SENATE SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
JUNE 17, 1987

Mr. Chairman and Members of the Committee:

My name is Harry L. Storey, President of the Alliance for Clean Energy or "ACE" as we are often called. ACE is a coalition of producers, carriers and consumers of low-sulfur coal. Our member companies have operations in both the eastern and western parts of the United States.

I appreciate the opportunity to testify here today on S. 321. As many of you already know, ACE has not, and currently does not support a specific acid rain control bill. We believe there is still scientific uncertainty about the cause and effect of acid rain. Having acknowledged that uncertainty, we are mindful that Congress may nevertheless take action. Even though ACE does not support a specific acid rain control bill, that does not mean we view all acid rain proposals in the same light.

In fact, we believe that if Congress does enact new SO_2 reduction requirements, it should be based on three key policy principles:

- First, acid rain legislation should be cost-effective. That is to say that any new SO_2 reduction requirements should allow coal-burning utilities the greatest freedom to choose from the full range of proven SO_2 reduction strategies. "Freedom of Choice" legislation will guarantee that U.S. consumers get the largest SO_2 emission reductions for every dollar they spend. They are entitled to that guarantee.
- Second, acid rain legislation should be flexible enough to allow for changes as more is learned about the cause and effects of the acid rain phenomenon.
- Finally, the costs of meeting new SO_2 emission reductions should be borne by those who are causing the excess emissions. This is simply a reinstatement of the "polluter pays" principle that is already embodied in most of our environmental laws.

We think these principles are important. Together they will maximize the effectiveness of any new acid rain program and minimize the costs to the consumer.

Mr. Chairman, you have long been identified as a major proponent of cost-effective acid rain controls. In fact, you were the first to introduce a cost-effective acid rain control bill several years ago.

You have continued to write cost-effective legislation up until the last session of Congress when you introduced S. 2200. Because of your reputation as a champion of cost-effective legislation, we were disappointed when you introduced S. 321 in January. It seemed to send a signal to us and others in the business community that you had put aside your commitment to cost-effective environmental regulation.

S. 321 is not cost-effective. It is not cost-effective because it sets a plant-by-plant SO_2 emission standard instead of a statewide standard. S. 321 requires all coal-fired utility plants to meet a 0.9 lbs. SO_2/MM BTUs emission rate when they turn 30 years old.

We are aware that S. 321 does include statewide SO_2 emission targets that must be met by 1996. But those statewide targets are irrelevant because of section 183(b). Section 183(b) says that whenever a power plant turns 30 years old, it must meet an emission limit of 0.9 lbs. SO_2/MM BTUs.

It is important to remember that S. 321 is aimed primarily at power plants built before 1971. Most of those power plants will be 30 years old by 1996 -- and all the rest will turn 30 within a few years after that. As a practical matter, the statewide targets are meaningless because they are effectively superceded by the 30 year, plant-by-plant, 0.9 lbs. standard.

In others words, Mr. Chairman, S. 321 sets two overlapping standards -- a statewide standard and a plant-by-plant standard. Of these two standards, the plant-by-plant standard is the less flexible and it is the one utilities will have to meet.

Why is the plant-by-plant standard a bad idea? Under this standard, utilities won't have the flexibility to use many of the lowest cost compliance strategies that they could use if the bill set statewide targets. For example, utilities won't be able to realize the full potential benefits of coal-blending, fuel-switching or coal washing -- these are all proven and reliable strategies. Each could contribute to large, relatively low-cost reductions of SO_2 emissions on a statewide basis. But none of these strategies alone can meet a 0.9 lbs. standard on a plant-by-plant basis. In fact, the plant-by-plant standard in S. 321 is set so low that virtually the only way to meet it is to use flue gas desulfurization units -- or "scrubbers".

The plant-by-plant standard means consumers will have to pay much more than they would if the bill set statewide SO_2 emission goals. But they will get no more environmental benefit for their money than they would if the standard were set on a statewide basis. A statewide 0.9 lbs. standard is equivalent to 0.9 lbs. plant-by-plant standard from the standpoint of total emissions. The plant-by-plant standard just costs more.

Since an 0.9 lbs. statewide average is the environmental equivalent of a 0.9 lbs. plant-by-plant standard, the question that comes to mind is, why choose the more expensive alternative?

The only answer we can come up with, Mr. Chairman, is that the plant-by-plant standard must be designed to advance some policy other than SO_2 reduction. In fact, we have heard it said that the 0.9 lbs. standard is intentionally designed to discourage fuel-switching and to preserve high-sulfur coal's share of future markets.

We don't know whether the 0.9 lbs. standard was selected with an eye toward allocating coal markets. But if that's a factor in your thinking, I want to urge you to weigh it against the extra high costs it will impose on consumers, and the environmental results of past attempts to divy up coal markets with the Clean Air laws.

First, legislative efforts to protect high-sulfur coal markets will cost the American consumer and electricity intensive industries approximately twice as much as cost-effective legislation would. The added cost will dwarf any economic benefits you might hope to see in the high-sulfur coal industry. The consumer should not be required to pay the cost of market protection for high-sulfur coal. The objective of environmental legislation should be to protect the environment, not markets.

Second, S. 321 is aimed at reducing SO_2 emissions from old coal-fired power plants. Those emissions are the direct result of earlier efforts to use the Clean Air Act to allocate coal markets. Most members of this committee will remember that the infamous "percentage reduction" requirement was added to the Clean Air Act in 1977.

The "percentage reduction" requirement has nothing to do with air quality. It was added to the Clean Air Act in 1977 to prevent new power plants from using clean low-sulfur coal to meet SO_2 emission standards. Since all new power plants must reduce SO_2 emissions, the "percentage reduction" requirement effectively forces all new power plants to use scrubbers. It was designed and intended to protect and expand markets for high-sulfur coal.

What actually happened was this: The "percentage reduction" requirement made new power plants so expensive to construct that utilities were forced to keep their older plants in operation much longer and to a greater extent than originally planned.

In other words, the "percentage reduction" requirement has contributed to the very environmental problem that you are trying to solve today -- excess SO_2 emissions from old power plants.

We are aware that S. 321 gives states the option to avoid the standard. They can elect an emission cap at 1996 levels.

This cap gets lower as power plants are retired. Such a shrinking cap on emissions could seriously inhibit economic growth, particularly in the high growth areas of the South and West. We doubt that any state would choose this alternative.

We urge you not to repeat the "percentage reduction" mistake. Do not eliminate or discourage the use of low-sulfur coals. Low-sulfur coal is the surest, fastest and usually least expensive way to reduce SO_2 emissions.

In closing, Mr. Chairman, I want to urge you in the strongest way to drop the 0.9 lbs. plant-by-plant standard. Return to the cost-effective, free market approach that characterized your earlier bills.

Thank you for the chance to share our views with the Committee. I would be pleased to answer your questions.

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STATEMENT OF THE
MANUFACTURERS OF EMISSION CONTROLS ASSOCIATION
BEFORE THE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
HEARINGS ON ACID RAIN LEGISLATION

JUNE 17, 1987

STATEMENT OF THE MANUFACTURERS OF EMISSION CONTROLS ASSOCIATION

I. INTRODUCTION

The Manufacturers of Emission Controls Association (MECA) is pleased to present testimony to the Senate Subcommittee on Environmental Protection at its hearing on proposed acid deposition legislation. MECA is a non-profit association of companies that manufacturer exhaust emission controls. Our companies are best known for their pioneering efforts in the development and application of catalytic converters to motor vehicles. The catalytic converter was a key element in making the mobile source air pollution control program one of this nation's great environmental success stories. Many of our companies have drawn on their extensive experience with automotive catalytic technologies to develop and apply catalytic controls to stationary sources.

In the time available this afternoon, I would like to focus our testimony on the application of catalytic controls to reduce NO_x emissions from stationary sources. As a supplement to our testimony, I would like to submit for the record, a copy of a letter from MECA to Senator Stafford dated May 29, 1987 responding to questions concerning the use of catalytic controls to reduce NO_x and VOC emissions from stationary sources, and a letter dated June 8, 1987 to Mr. James N. Lents, Executive Officer, South Coast Air Quality

NOTE: The attachments to this statement have been retained in committee files.

Management District (SCAQMD) discussing the application of catalytic controls to a number of sources for which the SCAQMD may require emission reductions.

II. SUMMARY

In the time available, we would like to emphasize several points:

- o Advanced catalytic control technology, which is available and being used around the world could greatly reduce NO_x emissions if it was widely applied to the appropriate stationary sources in this country. These catalytic controls are reliable, currently used, and achieve emission reductions of over 90% from stationary rich-burn engines, and up to 90% from utility and industrial boilers, gas turbines, and a variety of lean-burn engines.

- o The high level of emission reduction achieved through catalytic control of NO_x emissions comes at a cost. The incremental cost increase, however is reasonable and proportional to the higher NO_x removal efficiency. If NO_x controls were required, particularly for new and existing utility and large industrial boilers, a major part of the technology effort and improved product development would be focused on reducing the costs of controls.

- o Significant reduction in NO_x emissions will occur only if specific standards are adopted by Congress. The success of the Mobile Source Emission Control Program in which Congress set specific standards, clearly demonstrates the effectiveness of legislative requirements.

- If Congress adopts a comprehensive NO_x control program, our industry is committed to do our part to help insure that those standards are met.

III. BACKGROUND ON CATALYTIC CONTROL OF NO_x EMISSIONS

Japan and West Germany have established tough control measures to reduce the serious health and welfare threat posed by NO_x emissions. Most notably, these countries require stringent control of NO_x emissions from power plants. Catalyst technology used to meet these requirements is achieving up to a 90% reduction in NO_x emissions from power plants.

In the United States, NO_x control efforts have focused on emissions from motor vehicles. For example, NO_x emissions from automobiles have been controlled since the 1970's, and today's vehicles, which have catalytic converters, remove over 75% of the potential NO_x emissions. By contrast, stationary sources have been required to achieve only modest control, most typically through modifications to the combustion process. At best, such measures result in reductions of 50 percent.

There are two important types of catalytic controls for stationary sources: non-selective catalytic reduction (NSCR) and selective catalyst reduction (SCR). Both of these techniques are highly efficient in controlling NO_x emissions, which are considered the most difficult conventional air pollutants to control.

Non-Selective Catalytic Reduction (NSCR)

Non-selective catalytic reduction (NSCR) is used on engines operating with a stoichiometric or rich fuel mixture. When NSCR is utilized, the CO formed in the engine combustion reacts with the NO_x to form nitrogen and carbon dioxide through a series of chemical reactions over a precious metal catalyst. NO_x control efficiencies of greater than 90% have been achieved. In engines that operate with stoichiometric air and fuel mixture, the catalyst oxidizes HC and CO emissions while still reducing NO_x. The catalyst assists the chemical reaction which converts NO_x, CO and HC to nitrogen, CO_2 and water.

The first uses of NSCR in the U.S. were in decolorization and abatement of tail gas in nitric acid producing plants in the mid-1960's and automobiles in the late 1970's, and this technology has now been applied to a variety of rich burning stationary engines. A simple control device can be used to automatically adjust the air fuel ratio so that NO_x control is optimized. Many of the installations using NSCR are in remote unmanned sites where an automatic controller is used to insure maximum catalyst performance under a variety of operating conditions.

Selective Catalytic Reduction (SCR)

Reduction of already oxidized nitrogen in an oxidizing atmosphere is a process called selective catalytic reduction (SCR) and involves the injection of minor amounts of ammonia into the post combustion regions of a boiler or engine whose exhausts contain significant amounts of oxygen. When ammonia is mixed with, and is consumed by the combustion products at required temperatures, it reacts with the nitrogen oxides to form nitrogen and water, which are harmless. By using special catalysts, the temperature required is significantly reduced and the efficiency of NO_x control can reach 90 percent.

SCR systems are used on stationary lean burn engines and have achieved 90% reductions in NO_x emissions. In the United States, its most predominate use is with gas turbines and refinery heaters. Currently, over 18 cogeneration units in California are or will soon be equipped with SCR control systems. These cogeneration units typically utilize gas turbines to produce power and use the excess exhaust heat to make steam and/or additional electrical power. While SCR use on lean burn engines such as gas turbine engines is increasing, it is being employed on only a small fraction of the engines on which it could be utilized.

A related application of SCR is with combined cycle gas turbine power generation. In this application the exhaust from the gas turbine generates steam to drive a steam turbine and both turbines drive generators that produce electrical power. In Japan, about 17,000 megawatts of such power generation has been installed, and all facilities meet strict local NO_x emission standards by using SCR, which is considered the best available control technology. The largest plant (1090 megawatts) has already commenced operation. Combined cycle gas turbine power generation is likely to play a key role in meeting the future power needs of this country.

The largest potential use for SCR is to control NO_x emissions from power plants, and large industrial boilers including retrofit of existing major sources with control systems. SCR can be used on gas-fired, oil-fired, and coal-fired boilers, and can achieve reductions of NO_x emissions in the range of 60-90%. The technology has proven effective in power plants up to 1,000 megawatts output in size.[1]

SCR technology, particularly in power plant application, has received only limited attention in the United States. Ironically, while it was invented in the United States[2], it is being widely used in Japan and now increasingly in West Germany. In Japan, where NO_x emission standards were established for power plant emissions, SCR has been in commercial application since 1974. To date SCR technology has been applied to over 200 units in Japan where the systems are achieving control efficiencies of up to 90% with minimal operating difficulties.[3] SCR technology is now being deployed in West Germany to permit power plants to meet the recently-enacted NO_x control regulations designed to protect German forests from acid deposition. Several commercial SCR facilities have already been commissioned on German boilers and about one third of the country's coal-fired plants have already ordered controls, with the remaining facilities on an established schedule to equip controls. Once power plants are fully equipped with these control systems, power plant NO_x emissions are expected to be reduced by 80% in West Germany.[4] Both of these industrial nations have surpassed the United States in the control of NO_x emissions from power plants -- again using U.S.-invented technology.

IV. DURABILITY OF CATALYTIC CONTROL SYSTEMS

Over the years, catalytic control systems in both stationary and mobile source application have demonstrated excellent durability. Indeed, since stationary source facilities operate in a steady state environment compared to the transient, more severe operating environment of motor vehicles, maintaining catalyst durability is a somewhat easier task in stationary source application.

SCR systems have been operating on Japanese utilities for thirteen years in oil-fired and gas-fired units. The first few years saw some start-up problems. Since then, these facilities have operated without trouble and in fact some gas-fired boilers have been operating with their initial catalyst charge for more than ten years. Applications of SCR for coal-fired burners began in the late 1970's and is reaching an equivalent level of development giving quality in-use performance in Japan today. Improving catalyst durability is a prime objective of current technology development efforts among our member companies and others throughout the world.

V. COSTS OF TECHNOLOGY

The cost of emission controls is highly variable depending on such factors as the type of emitting source, the control efficiency desired, volume of exhaust, and the concentration of pollutants. Generally as stated above, while the high level of emission control achieved through catalytic technology does come at a cost, the incremental cost is proportional and reasonable compared to the high removal efficiencies. Indeed, a number of state and local permitting authorities have carefully reviewed the economics of catalytic controls and determined them to be reasonably affordable technologies.

Operating costs of SCR in power plant application have been estimated at 5 to 15 mils/kwh.[5] The experience in Germany suggests that the cost should be at the lower end of this range.[6] In Japan the average capital costs of installing SCR in new power plants was estimated in 1983 to be 7000 Japanese yen per kilowatt (assuming an exchange rate of 140:1, the estimated cost in 1983 U.S. Dollars would be $50/kw).[7] The average costs of utilizing SCR in power plants was estimated in 1983 to be 1.3% of the total operating costs of generating power.[8] In addition, if NO_x emission standards were established which required the use of catalyst control technology in the U.S., a major part of the technology development effort would focus on reducing the cost of control. Traditionally, as technologies have evolved and experience is gained, the cost of that technology has been reduced. For example, in Japan SCR costs have been considerably lowered and are currently about one-third that of flue gas desulfurization.[9]

Controlling NO_x emissions after combustion, heat exchange and power generation goes hand-in-hand with another important objective -- conservation and the resulting reductions in fuel supply costs as well as CO_2 emissions. High combustion efficiency generally results in greater NO_x formation. Using SCR to control NO_x emissions after combustion permits the combustion process to be optimized for combustion efficiency.

VI. LEGISLATIVE PROPOSALS BEFORE THE SUBCOMMITTEE

Controlling NO_x emissions from power plants and large industrial boilers presents the greatest potential for additional NO_x reductions. The provisions in S. 300 -- which would require major stationary sources of NO_x emissions to achieve emission reductions attained by technology demonstrated to be available for existing sources in any OECD country -- could be met with SCR and would result in significant reductions in NO_x emissions. While the requirement in S. 321 that major fossil fuel fired steam generating units, including both electric utililty and non-utility units meet a 0.6 pound per million BTU would result in some NO_x emission reductions, it would not achieve the greatest NO_x reductions technologically feasible.

In those arease where additional NO_x control is determined to be necessary to help reduce ozone and/or acid depostion, a requirement that non-major stationary source of NO_x achieve emission reduction percentages equivalent to those achieved by the technology identified as the most stringent RACT or LAER for that type source anywhere in the U.S. could result in further significant reductions in NO^x.

VII. CONCLUSION

The legislation currently being considered by this Subcommittee when eventually passed by Congress, will establish the framework for the control programs that will determine the quality of the air we breathe well into the next century. We recognize that many of the provisions being considered, if adopted, will offer engineering challenges to both our industry and the regulated industry. We are committed to do our part to insure that if standards are set, they will be met.

FOOTNOTES

1. Testimony of Dr. F.P. Boer, Senior Vice President, W.R. Grace & Co. before the Committee on Environment and Public Works, Subcommittee on Environmental Protection, March 3, 1987, p.2.

2. 1957 Application, U. S. Patent No. 2975025, issued 1961.

3. J. Ando, C.B. Sedman, "Status of Acid Rain and SO_2 and NO_x Abatement Technology in Japan", EPA-EPRI Tenth Symposium on Flue Gas Desulfurization, Atlanta, Georgia, Nov. 1986.

4. W. Ellison, "Assessment of SO_2/NO_x Emission Control Technology in Europe", EPA-EPRI Tenth Symposium on Flue Gas Desulfurization, Atlanta, Georgia, Nov. 1986.

5. Boer, Supra, Attachment, p. 2.

6. Id. at 3.

7. J. Ando, "Relationship Between Fuel Type and SO_x/NO_x Treatment Technology", Chapter 9, Section 9. 1981, revised 1983.

8. Id.

9. Chou University (Tokyo, Japan), "Recent Developments in SO_2 and NO_x Abatement Technology for Stationary Sources in Japan," September 1985, at 7-9.

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Statement
of
Ruth Gonze, Assistant Director of Government Relations
AMERICAN PUBLIC POWER ASSOCIATION
before the
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
on

S. 911, THE CLEAN COAL TECHNOLOGIES ACT OF 1987, AND ACID RAIN CONTROL LEGISLATION

June 17, 1987

My name is Ruth Gonze. I am the Assistant Director of Government Relations of the American Public Power Association. APPA is the national service organization representing more than 1,750 local publicly owned electric utilities throughout the country. More than 700 local public power systems purchase all or part of their power supply from investor owned utilities in wholesale transactions regulated by the Federal Energy Regulatory Commission (FERC) under the Federal Power Act. (For the purposes of this testimony, I will refer to these systems as "wholesale customers.") About one-third of public power systems generate all or part of their electric power needs, and these systems provide about 10 percent of the nation's electrical generation. Two-thirds of the electric power supplied by public power systems, either by self-generation or wholesale purchase, is derived from fossil fuels.

APPA has testified before this committee on specific acid rain control legislation on several previous occasions. We have evaluated these proposals against the standards of APPA policy on acid rain legislation. APPA supports national acid rain legislation which can meet reasonable standards of effectiveness, economy, and equity.

We believe, based on support from all regions of our membership, that a reasonable weighting of the interests of consumers in both a clean environment and in reliable electrical power at reasonable cost could be best achieved through adoption of the following central principles in acid rain legislation:

1. The program should include a nationwide funding mechanism based on an emissions fee applied to SO_2 and NO_x emissions from all fossil-fueled sources for which an emissions fee is feasible. Such sources specifically include utility boilers, industrial boilers, industrial processes, smelters, cars, and trucks. APPA specifically opposes electricity taxes.

2. Monies raised through emissions fees should be applied to fund adequately the most cost-effective, verifiable emission reduction measures. Such measures for SO_2 reductions specifically include fuel switching, fuels pretreatment, scrubber systems, fluidized bed combustion, and other measures now under development whose performance can be verified over the course of the program.

3. The program should be structured in two phases, with the continuance of the second phase contingent upon affirmative action by Congress. Given the substantial scientific uncertainties that presently exist, the very large costs associated with any reduction program, and the likelihood that improved information upon which to base decisions will be developed in the future, phasing would assure that mid-course corrections can be made in the program if necessary.

On this occasion, I will not comment on the specific proposals before the committee for mandated emission reductions. I will direct my testimony to the new and unprecedented proposals in S. 911, in Amendment No. 78 to S. 321, and in other pending Senate legislation for federal regulatory "incentives" to utilities to achieve "widespread" use of clean coal technologies.

APPA supports the development of clean coal technologies, and the establishment of federal grant programs to achieve it. We do not believe such programs should or need to be a substitute for acid rain control legislation. APPA does not support the achievement of emission cuts or clean coal technology development through: (1) rate incentive programs which are designed to confer competitive advantages to the coal and private utility industries over other fuels, other technologies, and other sectors of the utility industry; and through (2) vitiating the consumer protections in federal and state rate regulation.

The 100th Congress is the first in which major Senate proposals would significantly restructure electric utility rate regulation in order to achieve sulfur dioxide and nitrogen oxide emission cuts for the control of acid rain. These proposals would remove large utility investments from regulatory scrutiny and control, and seriously impair basic principles of utility regulation. Yet the impact of these dramatic changes has received as little attention as a footnote in the long saga of the acid rain debate.

If the regulatory revisions of S. 911 or similar bills were viewed on their own merits, I believe few members of this committee would support the abrogation of basic consumer protections which are ensured only by regulation of franchised utility monopolies. Yet, when absorbed in the acid rain struggle, otherwise conscientious legislators seem to lose sight of the how and the why of electric utility rate regulation.

As a matter of public policy, the electric utility industry is a business "affected with a public interest." This is true because electricity is considered an essential service, and is normally supplied under monopoly conditions at retail, with less than normal business risk. Utilities perform a public function and have a legal obligation to serve. Thus, they are controlled by elected or appointed public officials, regardless of their form of ownership.

Because they are "public businesses," private power companies are granted certain governmental powers, including the use of public rights of way and the right to condemn private property. They are also given franchised areas to serve, and are guaranteed the right to charge rates which recover costs plus a reasonable return on investment.

Wholesale customers cannot often shop around for power; they are captive customers, generally small, and generally short on bargaining power. FERC regulation is the only protection for many wholesale customers against rates based not on a "fair return," but on monopoly rents; state retail regulation is similarly essential for most retail customers of private power companies. Any diminution in the ability of FERC or state regulators to oversee and enforce cost-based, prudent, and fair electric rates simply invites abuse of consumers.

Members of this committee have struggled to devise effective acid rain requirements which are at the same time economical. Numerous studies have been commissioned to prove the cost-consciousness, affordability, and fairness to consumers of acid rain proposals. This concern for ratepayers is not evident is S. 911. It makes consumers the deep pockets for coal producer and utility profit maximization; and not one extra pound of SO_2 or NO_x would be taken out of the air, if substantial emission cuts are mandated at the same time.

The political point made by the juxtaposition of S. 911 and S. 321 -- that legislation encouraging clean coal technology use should not substitute for mandated emission reductions -- is compromised by sanctioning the stance of those who turn the case for acid rain control on its head: they would design emission reduction strategies to achieve profits for utilities rather than benefits to citizens or the environment.

What citizens get out of this is the check for gold-plated acid rain controls. For any given level of emission reduction achieved, S. 911's rate breaks would probably be more costly and economically damaging than mandated reductions. Until the provisions of S. 911 were proposed as an amendment to S. 321, no mandated reduction bill had provided a panoply of rate privileges discarding the principal consumer protections of the FPA, or made a vague but extraordinary suggestion for complete exemption from both Parts II and III of the Federal Power Act and the Public Utility Holding Company Act.

The Clean Coal Technology Grant Program

S. 911 would provide federal grants to clean coal technology (CCT) projects which meet certain listed criteria. Public power systems would be eligible for federal grants under new Section 193 of the Clean Air Act, but would not benefit from the provisions of greater effect in S. 911 -- the rate "incentives" of Section 3.

Public power systems are non-profit enterprises. Measures to increase utility profits are inapplicable to them, and equally inapplicable to rural electric cooperatives. Together, these industry sectors serve 25 percent of the nation's electric consumers.

If national policy calls for encouragement of industry-wide utility initiatives, such encouragement should not be targeted to one segment of the utility industry alone, and should not prefer one mode of utility organization over others. S. 911's grant program provides an evenhanded treatment of all industry sectors. The bill's rate incentive program gives preferential treatment to investor owned utilities.

But S. 911 would go further than preferential treatment: its mandatory rate breaks would confer extra profits to private utilities at the expense of their wholesale customers and the ratepayers of these customers. Rate penalties would be imposed on certain population groups to achieve national benefits for the whole population. One class of electric customers is singled out as the cash register for universal benefits.

The acid rain control bills before this committee are without exception based upon a concept much in favor: "let the polluter pay," in one variation or another. This committee should not endorse the concept of "let public power and rural electric cooperatives pay" for the bill's purpose "to promote the rapid deployment of existing clean coal technologies so as to reduce total atmospheric loading..." (new CAA Section 191[a]).

Rate Breaks for "Widespread" Use of Clean Coal Technology

The regulatory "incentive" provisions of S. 911 are directed to projects using clean coal technologies which are not yet in widespread use (new CAA Section 192[a]) -- that is, which may be fully demonstrated and commercial, but are not yet widely used. The bill does not define widespread use, and the rate breaks are permanent. There is no sunset provision for the bill or the breaks. "Widespreadness" could mean anything up to use of one form of CCT or another in 100 percent of coal-fired powerplants. If a concept as dubious as favoring "widespreadness" of one fuel or technology over others is judged worthy of large, federally mandated subsidies from a targeted segment of electric ratepayers, certainly its meaning should be sharply defined and limited; but we believe the committee should reject this industry windfall proposal entirely.

Section 3 Rate Incentives

Section 3(a) and (b) would give a range of special rate privileges to CCT projects which get federal grants, and to projects which don't get grants, but use a "designated" technology. Projects using "designated" technologies obtain rate privileges "to the extent that" they meet the criteria set for grants.

Expenditures for design and engineering of a CCT project must be approved, for both new and existing plants, as operating expenses. Full CWIP in rate base must be allowed for capital costs to retrofit, repower, or modernize an existing facility. Neither of these benefits is subject to any prudency review, for rate treatment of these costs is nondiscretionary whether or not imprudency can be shown. Thus, consumers are deprived of FERC protection from bad project management, excessive spending, or unwarranted risks. S. 911 would force wholesale ratepayers to bear all risk (for their share of the rate base) for retrofit of existing plants while preserving the benefit of profits to shareholders.

Automatic rate recovery for design and engineering costs is given to all projects which happen also to use clean coal technologies. These costs need not be necessary to the use of the CCT. The presumption of prudency provided in Section 3(a)(4) also applies to all expenditures or capital costs of CCT projects, whether or not necessary for the use of the CCT.

Five-year amortization is given for retrofit or modernization of existing plants, in contrast to the 30-year period typically used in state regulation. This would have the rate impact of paying for half a dozen plants all at once. This provision, combined with full CWIP in rate base and a presumption of prudency, gives utilities fast-forward cost recovery, an immediate guaranteed profit, and shelter from regulatory scrutiny, with the result that a large incentive is given to overbuild generation plant.

Finally, it appears that Sections 3(a)(1) and (2) would permit utilities to charge expenditures made with federal grant funds to ratepayers. If this reading is correct, it represents an unacceptable abuse of public funds and of ratepayers who would pay charges for nonexistent utility costs.

The Presumption of Prudency

Section 3(a)(4) would establish a rebuttable presumption that any clean coal project expenditure is prudent for projects which receive grants. Section 3(b) would extend the presumption to projects without grants using "designated" technologies. This provision is apparently related to apprehensions arising from recent highly publicized prudency reviews of nuclear powerplants. It is important to recognize that these reviews have been retrospective, and used to exclude from rate base facilities begun long ago and which should be ready for operation, but which can't operate for various reasons, or are unneeded because of capacity surpluses.

It is not appropriate here to discuss the individual merits of each such review; nor should the committee conclude anything on that question from the fact of such reviews. It is pertinent that such prudency reviews have not been used to deny utilities recovery of expenditures for research and development or for commercial demonstration of technologies. These expenditures have often had the prior support of state regulators. There is no reason they cannot continue to gain such support, unless lack of accountability is institutionalized by legislation such as S. 911.

FERC has authority now, under the Federal Power Act, to grant advance approval to high risk RD&D expenditures. We commend to the committee, as a model, the procedures of FERC to approve cost of service or rate base treatment of utility RD&D expenditures (18 CFR 35.22). Such expenditures could certainly include clean coal technology commercialization projects, but certainly not "widespreadness" undertakings, as they (and this bill) should not.

FERC's rules for approval of rate treatment of such expenditures contain various safeguards; S. 911's regulatory relaxations exclude such safeguards. FERC's tests for the adequacy of a project plan include:

> "(1) Evidence that the RD&D objectives of the company or research organization have been clearly established.
>
> "(2) Evidence that the plan evolves from these RD&D objectives and adequately utilizes the viewpoints of scientific engineering, industry, economic, consumers and environmental interests.
>
> "(3) Evidence that an effective mechanism exists and is used for coordinating this research and development with other relevant efforts of national scope.
>
> "(4) Evidence that the project or program is well conceived, and, if successful, has a reasonable chance of benefitting the ratepayer in a reasonable period of time, having due regard to the basic, exploratory or applied nature of each submitted RD&D project.
>
> "(5) Evidence that whatever achievements may result, including knowledge gained or technology developed from the RD&D effort, if any, will accrue to the benefit of the sponsoring jurisdictional company(s) and its/their customers."

Prior regulatory support, with safeguards such as those adopted by FERC, should make prudency reviews unfrightening to utilities. But the fact that utility executives may dislike accountability does not constitute a reason to lessen it. There are many and weighty public policy reasons to retain prudency reviews untouched.

Consideration of the prudency of investments in a generating facility is based on factors which are known to a utility, or should be known, when the investment decision is made. The major issues are whether the need exists for the capacity being constructed; and whether the means selected to meet that need are the most appropriate. When the prudency of an investment is challenged, the utility has the obligation to come forward with evidence that its decisions were prudent. The burden of proof rests with the utility.

The legislation would reverse this burden to establish a presumption that all clean coal project expenditures were prudently incurred. The burden of rebutting the presumption that a decision was prudent must be borne by customer intervenors. They would be placed in the extremely difficult position of trying to prove a negative -- that the utility's investment was not prudent.

The essential effect of a presumption of prudency is to shield utility executives from any meaningful oversight. There is no reason whatsoever why this presumption is appropriate. Utilities making investment decisions should have solid justification for their actions. If their actions are challenged, they should be ready to come forward with evidence which would lead the hypothetical "reasonable person" to reach the same conclusion as the utility's executives reached. It is unreasonable to expect that intervenors or others, who do not have the evidence which the utility has, can prove that the decision should not have been made.

Using Wholesale Customers as Cash Register

S. 911 offers a double opportunity to utilities considering a clean coal technology project: to build with generous forced help from wholesale customers, and to put these customers, who are competitors at retail, at a serious competitive disadvantage.

Under the Federal Power Act, FERC is required to consider whether a proposed wholesale rate would be discriminatory. A "just and reasonable" rate must take into account discriminatory or anticompetitive effects. If a purchasing utility is placed in a "price squeeze" by a discriminatory rate, the law requires FERC to adjust the wholesale rate to prevent or mitigate the price squeeze.

A price squeeze exists when a buying utility's wholesale rate is so close to the seller's retail rates as to endanger the ability of the wholesale buyer to compete at retail. Anticompetitive price squeeze situations can cause wholesale buyers to lose customers to the power supplier, and, if serious enough, can eventually force the sale of the system to the power supplier.

S. 911 would create price squeeze situations by requiring FERC to find large, nondiscretionary, unexamined rate breaks to be "just and reasonable." These rate breaks are applicable only at the federal level. The utility cannot raise its rates to retail customers because state regulators do not allow comparable windfalls to utilities at retail. Thus, gravely serious price squeeze problems could arise. Some distribution utilities could be forced out of business from the combined impact of S. 911's rate hikes.

At the same time, S. 911 prohibits any remedy through FERC, by requiring the Commission to find all of the bill's rate breaks just and reasonable. If the committee, despite S. 911's anti-consumer, pro-industry approach to environmental preservation and CCT development, determines to act favorably on any of its rate provisions, then competitive neutrality can be secured only by one of two means: either rate breaks must be applied equally to state retail regulation and federal wholesale regulation, or FERC must be given the latitude to reject the regulatory incentives for investments in clean coal projects when their use would result in a discriminatory and anticompetitive rate. If the latter option is selected, FERC should be directed to presume a discriminatory rate in all cases where the state regulating an investor owned utility's retail rates does not allow the regulatory incentives provided for that utility's wholesale rates pursuant to the provisions of S. 911.

Using Federal Rate Breaks to Undermine State Regulation

S. 911 creates a strong incentive for utilities to shift their operations from traditional state regulation to the newly generous federal regulation. There is a ready mechanism to accomplish this: the creation of a generating subsidiary to build the CCT plant or plants. Sales between the generating subsidiary and the operating utility are wholesale transactions, and thus regulated by FERC.

The operating utility may now recover from retail customers its full wholesale purchase costs, and state regulators have no authority to prevent the passthrough, however excessive the approved wholesale rate is. The right solution to this dramatic restructuring of regulatory authority is to retain the full regulatory scrutiny and consumer protections of existing law, and to reject the rate revisions of S. 911.

Exemptions from the Public Utility Holding Company Act and the Federal Power Act

Section 3(c) permits the Commission to exempt any person from the provisions of the Public Utility Holding Company Act (PUHCA) and Parts II and III of the Federal Power Act, to the extent that either Act applies due to ownership or operation of a clean coal project, and the Commission determines that the exemption would be necessary to permit the person to participate in the project.

This provision appears to be patterned after Section 210(e)(1) of the Public Utility Regulatory Policies Act, which provides similar exemption authority to the Commission for qualifying cogeneration and small power production facilities.

There is a fundamental difference between PURPA Section 210(e)(1) and Section 3(c) of this bill. By definition, qualifying cogeneration and small power production facilities must be owned by persons not primarily engaged in the generation of electricity. Thus the PURPA exemption was designed to encourage non-utilities to participate in the cogeneration and small power production program. Exemption from Part II of the Federal Power Act was necessary to allow avoided costs to be charged, rather than imposing rate regulation with a "just and reasonable" rate standard. Extending the same principles to electric utilities is another matter entirely.

Section 3(c)(1) of S. 911 would exempt utilities from PUHCA and Parts II and III of the FPA "to the extent" that either Act applies "by reason of" ownership or operation of a CCT project. This provision would encourage holding companies to create a new generating subsidiary which would build, own, and operate a CCT project, in order to obtain FERC exemption from both statutes.

Section 3(c)(2) would further require that FERC find an exemption "is necessary" for the utility to participate in the CCT project. This language is ominously vague. Does it refer to the economic viability of a project? If so, would an exemption be "necessary" to permit a utility to charge unregulated rates even higher than the steep cost recovery allowed by the rate incentives of Section 3?

If electric utilities do obtain exemption from PUHCA and the Federal Power Act under Section 3(c), the following consumer safeguards would be foregone:

- Public scrutiny of holding company affiliate transactions.
- Requirements for arm's-length dealings and cost-of-service charges between affiliates.

- SEC scrutiny of holding company corporate acquisitions.
- Public access to electric utility rate information.
- Opportunity for public comment on proposed rate increases, and review and approval by FERC.
- Disclosure to and approval by FERC of interlocking directorates among utility companies, and between banks and utility companies.
- The right of any person to request FERC investigation of a complaint that a rate is excessive or discriminatory, or that any rate or practice of a utility violates the antitrust laws.

We believe that such sweeping repeal of statutory protections against monopolistic abuse of consumers should be rejected out of hand. But it certainly requires close and detailed examination by the Congress on its own merits. It is unacceptable for these measures to become bargaining chips in the acid rain debate.

APPA strongly urges the committee to reject a program which: is devised to advantage the coal industry and private electric utilities; biases regulation toward capital-intensive, coal-only technologies; discriminates against non-profit utilities, serving 25 percent of the population, in its rate incentive provisions; charges the costs of a national program to a targeted group of electric ratepayers; drastically weakens vital consumer protection statutes upon which all citizens depend; and achieves no additional pollutant emission reductions whatever in combination with mandated acid rain control programs.

NATIONAL COAL ASSOCIATION

Testimony of

A. Denny Ellerman

on behalf of

The National Coal Association

before

The Subcommittee on Environmental Protection

of

The Senate Committee on Environment and Public Works

Washington, D.C.
June 17, 1987

My name is A. Denny Ellerman, I am Executive Vice President of the National Coal Association, recently merged with the Mining and Reclamation Council of America. The National Coal Association represents producers of coal, both large and small, both east and west, both low and high sulfur. Our membership produces about 60% of the nation's coal.

I'm sure it will come as no surprise to you that the National Coal Association is opposed to the enactment of S. 321, S. 300 and S. 316. This is the same position we have taken with regard to similar legislation introduced in previous years and we see nothing in the provisions of these or other bills, or in the continuing scientific research concerning this issue to warrant a change in our position.

The legislation before this subcommittee continues to be as was its predecessor; a proposal to impose a nationwide limit on emissions of SO_2 from sources not now subject to new source performance standards without regard to whether such limit is required to achieve the National Ambient Air Quality Standards for SO_2 to protect public health and welfare. The proposed legislation will force a reduction in aggregate SO_2 emissions that will be costly and will have little effect on the localized and limited instances of ecological distress which are the supposed beneficiaries of this and other legislation proposed to "control" acid rain.

I might note also, not with respect to S. 321, but to S. 1351, the "Clean Air Standards Attainment Act of 1987," recently introduced by Senator Mitchell, that this proposal contains requirements for EPA to (1) implement a one-hour SO_2 standard, (2) establish a secondary standard for fine particles, and (3) promulgate a standard for acid aerosols in addition to the NAAQS for particulate matter. These provisions are not related to ozone non-attainment. They constitute an "acid rain" control bill as severe in magnitude of forced reductions as other proposals introduced in this Congress. Although proposed as a health standard, and currently being evaluated as such by EPA, the one-hour standard is often spoken of as an alternative approach to so-called "acid rain control." This proposal is being properly considered by EPA, who should be allowed, after appropriate peer and public review and comment, to come to a decision on this issue. The National Coal Association would oppose any provisions, such as contained in Title III of S. 1351, to force prematurely the issuing of this standard.

With respect to the continuing scientific debate, we continue to look forward to the publication of the interim report of the National Acid Precipitation Assessment Program which will provide the best summary of the state of our scientific knowledge following what has been the very significant research on acid rain conducted since 1981. Rather than debate the uncertainties of cause and effect concerning acidity in the environment, the costs of the proposed reduction of SO_2 emissions, or particular provisions of S. 321, all of which will be amply covered by other witnesses before you today, I would like to direct my remarks to the specific findings of the National Coal Association with regard to the reduction of SO_2 emissions in the United States. S. 321 appears to be motivated, at least in part, by a perception that the Clean Air Act is not working; and that absent additional controls such as those proposed, emissions of SO_2 will rise. This is an erroneous view of the efficacy of the Clean Air Act and of the trend in SO_2 emissions.

In fact, the efficacy of the Clean Air Act has been consistently underestimated. We recently came across a quote from the House Committee Report on the 1977 Clean Air Act Amendments in which it was stated that absent this particular provision (in this case, the new source performance standard and relying solely on the 1970 act) SO_2 emissions from coal-fired power plants would double between 1970 and 1980 and triple by 1990. In fact, three years later, in 1980, far from doubling, these emissions were 2% lower than they were in 1970 despite a 78% increase in the use of coal. By 1985, when the revised NSPS called for in the 1977 Amendments had just begun to have effect, emissions were still lower, and in 1990 they will be lower still, not triple the 1970 level.

Similar forecasts of rising SO_2 emissions in conjunction with calls for additional legislative controls on SO_2 emissions have characterized the acid rain debate. By 1980, we knew that

SO_2 emissions from coal-fired power plants were not going to be double the 1970 level and we knew that total SO_2 emissions had fallen substantially despite rising coal use. But the forecasts, although adjusted downward, continued to show rising SO_2 emissions. And the argument was advanced that they would rise in the 1980's because of the large anticipated increase in coal use and because of the expectation that with most plants in compliance with respect to sulfur dioxide by 1980, no further reductions of SO_2 emissions could be expected to result from the Clean Air Act, absent additional acid rain controls.

Last year in similar testimony before this Committee, NCA provided a detailed analysis and study of SO_2 emissions from coal-fired power plants from 1980 to 1985. Contrary to the forecasts of rising emissions, that study found that SO_2 emissions from coal-fired power plants continued to decline. EPA later verified those findings. Specifically, between 1980 and 1985, while the nation experienced a significant increase in coal use -- in 1985, electric utilities consumed 23 percent (125 million tons) more coal than they did in 1980 -- emissions of SO_2 from coal-fired power plants actually declined by nearly 3 percent. The actual level of SO_2 emissions from coal-fired power plants on 1985 was 10 percent below the EPA projection for 1985 and, more significantly, below the 1980 level of emissions.

NCA has just completed the same analysis for 1986 data and, with your permission, Mr. Chairman, I would submit this study for inclusion in the record.

SO_2 emissions from coal-fired utilities continued their decline in 1986, and this last year's decline was greater than the SO_2 emissions decline experienced from 1980 through 1985. The magnitude of the 1986 decline reflects the combined effect at a small, 1.2 percent, reduction in utility coal consumption coupled with the more important, however, a continuing decline in SO_2 emission rates.

It should be noted that nearly 65 percent of the decline in SO_2 power plant emissions since 1980 has occurred in existing plants. There are the plants not subject to new source performance standards, that are the target of acid rain control legislation. They are the same plants of which it was assumed once in compliance that no further reductions could be anticipated. The causes of the unexpected decline in SO_2 emissions from coal-fired power plants is illustrated by the graph attached as exhibit A. Had SO_2 emission rates not declined between 1980 and 1986, total SO_2 emissions would have risen to nearly 20 million tons based on increased coal use. Instead, SO_2 emissions fell nearly a million tons. tons. As explained in the attached NCA study, "Reduction in Sulfur Dioxide Emissions at Coal-fired Power Plants - The Trend Continues," the cause of the decline can be attributed to four distinct causes:

- The NSPS effect: the result of the emissions limit imposed on new plants that is more stringent than that obtaining for existing plants;

- The Demand shift: the result chiefly of the movement of economic activity and electricity demand to regions which use lower sulfur coals;

- The Sulfur shift: the result of substituting lower sulfur coals in power plants throughout the country; and

- The Scrubber effect: the result of retrofitting new technology, in this case, scrubbers onto plants not subject to the new source performance standard.

When we first attempted to analyze trends in SO_2 emissions from coal-fired power plants, based on 1984 data, we hazarded a guess at 1990 emissions based on a continuation of the trends in evidence between 1980 and 1984. Based on two more years' data, we are more confident in asserting that SO_2 emissions from coal-fired power plants will be lower in 1990 than they were in 1980. This is a view not shared yet by EPA; however, I am compelled to note that our record to data on this matter has been better than theirs. Exhibit B compares EPA's successive base case estimates by date with actual emissions since 1980 and NCA's extrapolations to 1990.

EPA's latest interim base case forecast has recognized what is now history with respect to 1985, and they have lowered the forecast for 1990 considerably, but they persist in anticipating a rather sharp increase in SO_2 emissions in the late 1980's when growth in coal demand by electric utilities will be decidedly sluggish.

That increase did not occur in 1986. Instead, as noted, SO_2 emissions fell by another half-million tons, so that to reach the EPA forecast for 1990, we will have to experience an increase in SO_2 emissions of a million and a half tons in the next four years. This is very unlikely to occur given the sluggish outlook for coal demand by electric utilities and the continuation of the now 13 year unbroken trend of declining SO_2 emission rates from coal-fired power plants.

The argument with respect to SO_2 emissions from coal-fired power plants is now most properly discussed with respect to the post-1990 period. We have not extended our projections into the 1990's, not so much out of fear of the results, but out of respect for the uncertainties involved in any such prediction. Based on the experience to date, we believe that the constantly revised projections of rising SO_2 emissions must be greatly discounted. Although not stated as such, they are, at best, worst-case projections, which are consistent only in ignoring the potential for things not to turn out as badly as we feared they might. With respect to sulfur dioxide emissions from coal-fired power plants in the 1990's, we would do well to remember the following:

- The Clean Air Act will continue in effect, and particularly those provisions of the 1977 Amendments, such as the PSD requirements, which will keep emissions from rising to levels otherwise permitted by National Ambient Air Quality Standards;

- Emerging New Technologies of coal combustion and sulfur control will permit, in conjunction with the Clean Air Act, even lower average emission rates; and

- Coal is not guaranteed the next increment of generating capacity if oil and gas prices continue to be lower than what we have come to expect before 1986.

In summary, gentlemen, there is no crisis of rising SO_2 emissions, and consequently, no reason for enacting acid rain controls based on such reasoning. There is some possibility that the SO_2 emissions could begin to increase again in the 1990's, but it is no more than a possibility. It is equally possible, and indeed more probable, that those emissions will continue to decline.

Acid rain controls, such as proposed in S. 321 or similar legislation, will cause a more precipitate decline in SO_2 emissions from electric power plants than what would occur otherwise. These additional controls, essentially a more stringent emissions limit on non-NSPS plants, or their forced retirement, will cost a great deal and yield marginal benefits, if any at all, with respect to acidic waters, forest decline, or other instances of ecological distress all too easily ascribed to "acid rain". On this basis, the National Coal Association recommends that S. 321 and similar legislation designed to "control acid rain" not be considered favorably by this committee.

EXHIBIT A

ANALYSIS OF SO_2 EMISSIONS REDUCTION

(Millions of Tons)

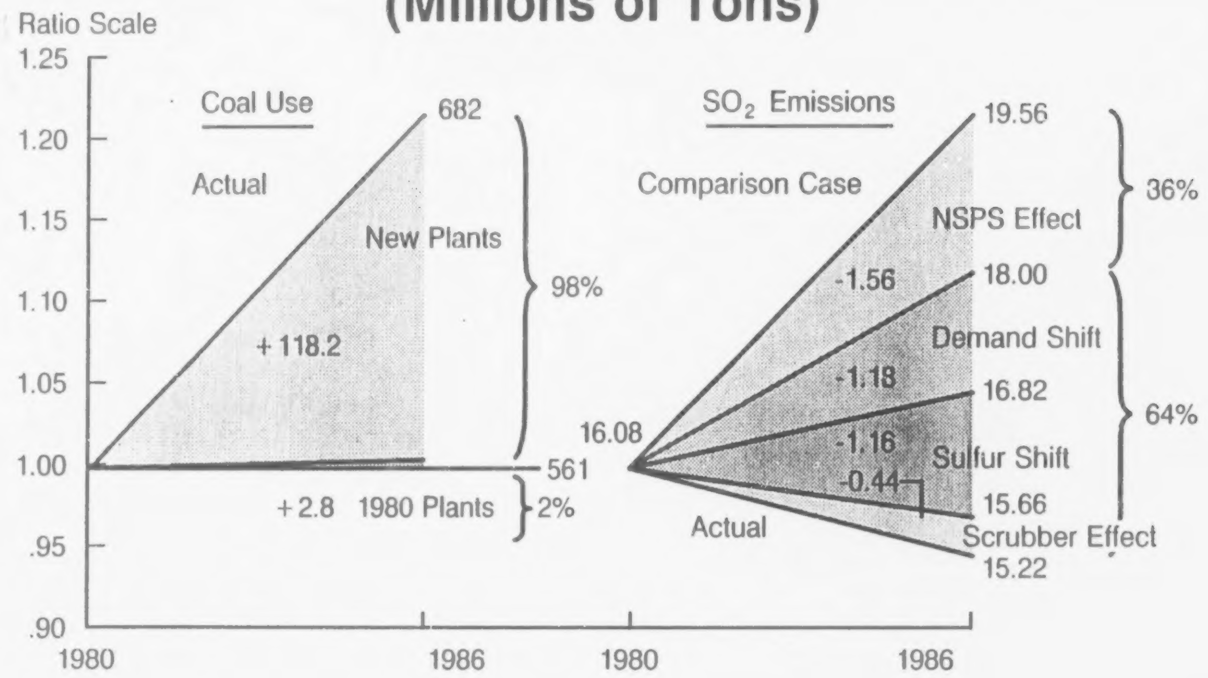
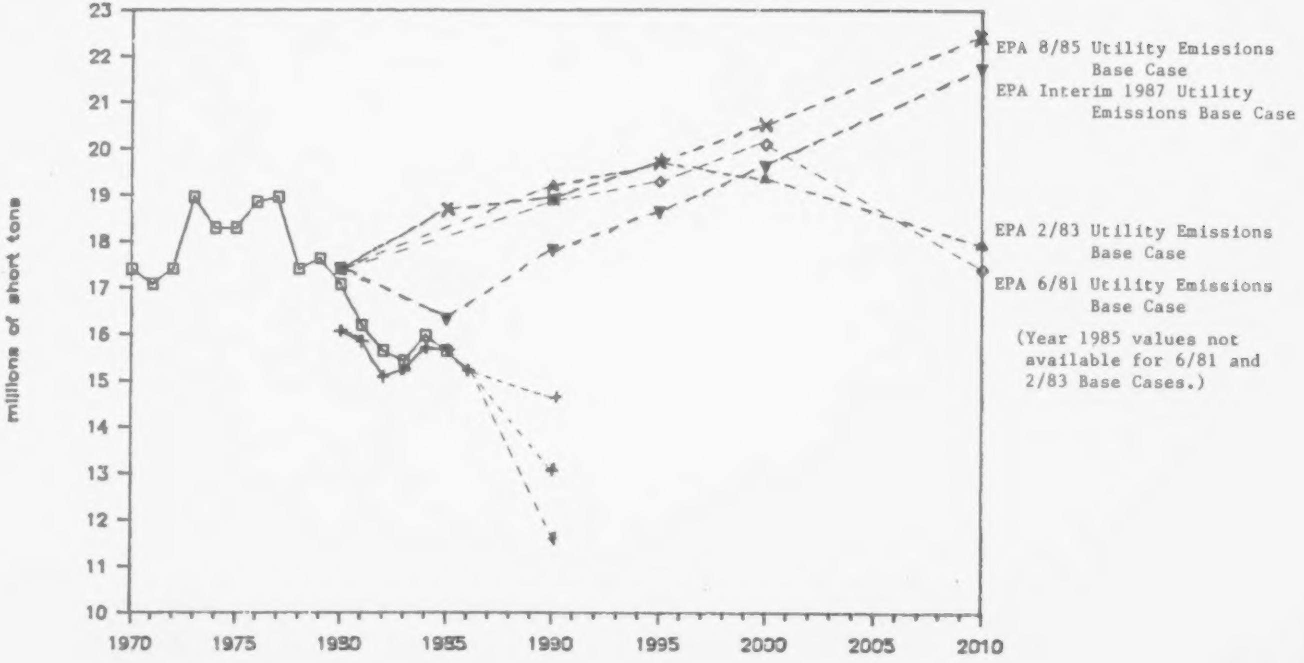


EXHIBIT B

SO2 EMISSIONS FROM UTILITIES



□ EPA: Emissions from all utilities (1970 - 1985)

+ NCA: Emissions from coal-fired utilities (1980 - 1986) and 1990 extrapolations.

REDUCTION
IN
SULFUR DIOXIDE EMISSIONS
AT
COAL-FIRED ELECTRIC UTILITIES

★ ★ ★ ★ ★

THE TREND CONTINUES

NATIONAL
COAL
ASSOCIATION

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NOTE: The following has been excerpted from this report. The report, in its entirety, has been retained in committee files.

THE DOWNWARD TREND IN SULFUR DIOXIDE EMISSIONS AT COAL-FIRED ELECTRIC UTILITIES
- 1986 UPDATE -

SUMMARY

SO_2 emissions from coal-fired power plants declined from 15.67 million tons in 1985 to 15.22 million tons in 1986. This decline continues the trend in effect since 1973, contrary to predictions that SO_2 emissions would increase in the 1980's because of rising coal use. The 448 thousand ton decrease in emissions in 1986 was greater than the total emissions decline of 418 thousand tons experienced from 1980 through 1985. Approximately forty one percent of the 1985 - 1986 decrease was a result of the 1.2 percent drop in coal consumed by power plants. Almost 60 percent, or approximately 263 thousand tons of the total decline in 1986, was attributable to continuing reductions in emission rates.

Since 1980, a decline more than equal the national total decrease in SO_2 emissions from coal-fired power plants has occurred in the regions of greatest interest to Canada. Emissions from the regions bordering Canada, from North Dakota to Maine, were 880 thousand tons lower in 1986 than in 1980. The net decline over the total United States during the period was 866 thousand tons. This significant reduction in border region emissions results from the slower rate of increase in demand for coal-fired power in these regions, displacement of older plants by new plants, the shift to lower sulfur coal and retrofit scrubbers.

ANALYSIS

One year ago, to determine the reasons for the disparity between commonly made projections that SO_2 emissions would increase in the 1980's, and actual data that revealed a continuing decline in these emissions, NCA conducted a detailed study of emissions at coal-fired power plants over the 1980-1985 time period. That study showed that SO_2 emissions had declined by 2.6 percent over the period despite a 23.0 percent increase in coal use by utilities. NCA identified four factors causing the decline in SO_2 emissions: the addition of new coal-fired generating capacity with lower emission rates; the shift in demand for coal-fired power from higher emitting to lower emitting power plants and regions; the decline in the average sulfur content of coal burned by power plants; and the addition of scrubbers to existing non-NSPS capacity.

CONCLUSIONS

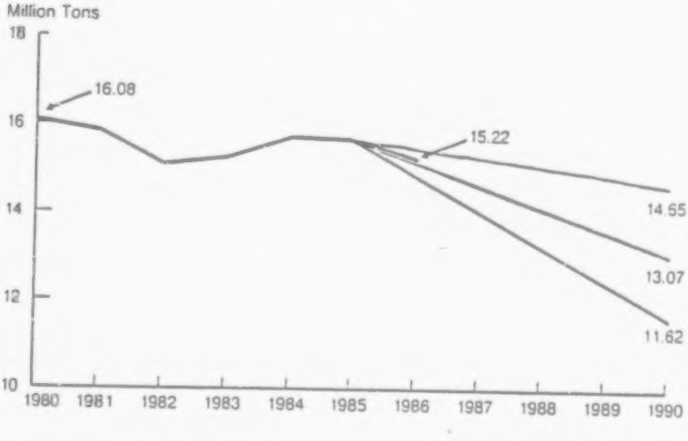
Forces reducing SO_2 emissions despite increased use of coal continued in effect in 1986. New plants coming on line subject to stringent emissions regulations, shifts in demand to regions with lower emission rates, and the use of lower sulfur coals are still causing total SO_2 emissions to decline, and all of that nearly million ton reduction in SO_2 emissions has occurred in the areas adjacent to eastern Canada.

Demand for coal-fire power is expected to grow at a much slower rate in the second half of the 1980's as compared to the first half. This prediction is certainly borne out by the 1986 experience. Slower coal growth produces a correspondingly slower growth in SO_2 emissions before accounting for any effects of the factors which reduce emission rates.

In the previous analysis, NCA concluded that SO_2 emissions from coal-fired power plants were declining and would continue to decline at least through 1990. These conclusions were based on an analysis of the 1980-84 experience, on the expected continuing decline in tons of SO_2 emitted per ton of coal consumed, and on the projected slow growth in utility coal consumption during the second half of the 1980's. The results of the analysis of emissions data incorporating 1986 data verify NCA's assumptions and add further weight to NCA's previous conclusions.

Chart One shows the NCA "extrapolations" based upon the 1980 - 1984 data by which 1990 SO_2 emissions from coal-fired power plants were projected, based on a continuation of the trends identified from the 1984 data and NCA's existing forecast of coal demand by electric utilities in 1990. As shown, the 1986 emissions totals fall within the predicted range. Based on the results through 1986, we see no reason to change our earlier statements that the often projected increase in SO_2 emissions in the 1980's will not occur, and that in fact, SO_2 emissions in 1990 will be lower than they were in 1980.

CHART ONE - SO_2 EMISSIONS, 1980 - 1990



NATIONAL
COAL
ASSOCIATION
COAL

EDISON ELECTRIC
INSTITUTE The association of electric companies

June 25, 1987

The Honorable George Mitchell
Chairman
Subcommittee on Environmental Protection
Room 415, Dirksen Senate Office Building
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

On February 3, 1987, the Subcomittee on Environmental Protection of the Senate Committee on Environment and Public Works received testimony from four witnesses on the "Health Effects of Precursors of Acid Deposition." That testimony contained allegations that current levels of air pollution, including ambient concentrations of sulfur dioxide (SO2) and sulfates, are causing adverse health effects. Testimony presented on June 17, 1987 by Dr. Haluk Ozkaynak repeated the allegations that current ambient air quality is endangering public health. This letter focuses on the allegations regarding effects of both short-term and chronic exposure to SO2 and sulfates. These claims simply are not supported by the available scientific evidence.

We are concerned that the information that these five witnesses have provided to the Subcommittee is misleading. A comprehensive assessment of the available scientific evidence, ambient air quality and EPA's efforts to ensure that it protects public health shows that the current national ambient air quality standards are working. As a result, Congress need not alter the current ambient standard program or augment current control requirements with a new round of emission reductions.

To explain the facts underlying those conclusions, we refer to the enclosed testimony of Drs. E. Regis McFadden, Jr., Roland H. Ingram, Jr., Frederick W. Lipfert, H. Daniel Roth, and C. Shepherd Burton. (Copies of their curricula vitae are attached to their statements.) In addition, Dr. Ian Higgins, who was asked to testify by the Subcommittee staff but who is unavailable for about a month, has authorized us to forward to the Subcommittee a report that he prepared last August reviewing the recent evidence on the health effects of sulfur oxides. A copy of that report is also enclosed.

Contrary to the impression left by the five witnesses who testified to the Subcommittee, given the success of the existing ambient standards, ambient levels of SO2 are not a threat to public health. The report of Dr. Higgins, who is Acting Chief of Epidemiology at the Mahoney Institute for Health Maintenance, American Health Foundation, concludes that there is no reliable evidence of increases in mortality or of either acute or chronic morbidity associated with SO2 concentrations occurring where the current standards are attained. Moreover, Dr. Lipfert's letter and detailed review of of the relevant epidemiological studies reinforce this conclusion and explain that Dr. Ozkaynak's testimony on June 17, 1987 is overstated and unsupported by the studies.

Although the epidemiological evidence indicates no cause for concern about ambient SO2 levels, EPA is evaluating laboratory studies finding transient respiratory responses in exercising asthmatics exposed for short periods to elevated SO2 concentrations. The Agency is assessing whether to establish a new, one-hour ambient air quality standard for SO2 based on these studies. Both Dr. McFadden and Dr. Ingram, nationally known experts on asthma, have reviewed the clinical studies reporting these responses in exercising asthmatics. Their conclusion is that the responses shown, which are modest and short-lived and do not lead to cumulative or long-term effects, are not adverse to the asthmatics' health and do not represent a threat to the public health. This is confirmed by the lack of any credible epidemiological evidence of an association between SO2 at current levels and adverse health effects in asthmatics. As Drs. McFadden and Ingram also point out, the reported responses in exercising asthmatics exposed to SO2 are similar to or less than the reactions of asthmatics to a wide variety of more frequently encountered stimuli, including exercise alone, cold air, laughing, taking a deep breath, and exposure to pollens, detergents, perfume, and so forth. Thus, in the overall context of influences producing such responses in asthmatics, exposure to SO2 is not a significant factor. On the basis of these data, both Dr. McFadden and Dr. Ingram conclude that there is no need or scientific justification for the establishment of a new, one-hour SO2 standard to protect the public health.

Furthermore, the effects in question could occur in asthmatics only if they were exposed to a sufficiently high SO2 concentration while engaged in moderate to heavy exercise. The risk of such an event would be greatest for those asthmatics in the vicinity of major SO2 sources. The report of Dr. Burton of Systems Applications, Inc. (SAI), discusses the analyses that have been and are being conducted by SAI, in conjunction with others, to estimate the fraction of asthmatics around such sources who could experience such an exposure. As Dr. Burton reports, the data indicate that only an extremely small portion of the asthmatic popoulation would encounter a sufficiently high SO2 exposure during exercise to trigger these transient effects even once a year. As he further notes, only a fraction of those exposed asthmatics would actually experience a response. Thus, he concludes that the existing SO2 standards appear to protect over 99.5% of asthmatics from potential responses to ambient SO2 concentrations. Even then, as discussed above, those responses are not adverse health effects.

Although the witnesses who testified before the Subcommittee alleged that sulfates cause both mortality and morbidity, the data do not support that conclusion. Drs. Lipfert and Higgins have addressed the epidemiological evidence. Dr. Lipfert concludes that the available studies do not show that sulfates at current ambient levels are causally related to either increased morbidity or mortality. Dr. Higgins concurs that there is no clear evidence implicating sulfates at current ambient levels as a cause of either acute or chronic health effects.

Moreover, both Dr. Lipfert and Dr. Roth call attention to a recent workshop held by EPA on June 10-12, 1987, to review the existing data on the health effects of acid aerosols, including both sulfates and nitrates. Both of them were participants in that workshop, which included experts from a broad range of American and Canadian organizations, including EPA, academic institutions and an environmental group. As they report, the consensus of the workshop participants was that, at the present time, there are no data reliably linking acid aerosols at current ambient levels with adverse health effects. Indeed, there are some data indicating that current acid aerosol levels do not have such effects. As a result, the Clean Air Act appears to protect the public health adequately from acid aerosols, including sulfates.

In conclusion, we submit that the enclosed testimony from scientific experts demonstrates clearly that current levels of SO2 and sulfates do not pose a threat to human health. Thus, the imposition of additional controls or standards for those pollutants cannot be justified on health grounds. If the Subcommittee should wish any of these experts to testify at a future hearing or to answer any questions from the members, please let us know, with adequate notice, and we will make every effort to obtain their participation.

Very truly yours,

Thomas Kuhn
Executive Vice President
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cc: Members of the Senate Committee
on Environment and Public Works

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June 23, 1987

The Honorable George Mitchell
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Washington, D.C. 20510

Dear Mr. Chairman:

On June 15, 1987, I was asked by a staff member of your Subcommittee to appear at a hearing on June 17, 1987, on the health effects of air pollution precursors of acid deposition. Due to the very short notice, I could not attend. I have, however, reviewed the testimony presented at that hearing by Haluk Ozkaynak, Ph.D. I would like to give you my response to that testimony.

After reviewing a number of recent epidemiological studies, Dr. Ozkaynak concludes that the evidence from those studies indicates that "air pollution, especially particulate pollution, even at current levels, could be of concern to public health in terms of its contribution to excess mortality and morbidity" (p. 11) and that "current pollution levels in the U.S. are likely to cause premature mortality and human morbidity" (p. 12). While no one denies that air pollution episodes far in excess of current standards would be a matter of concern for public health, I believe that Dr. Ozkaynak has overinterpreted the results of the studies he cites in several key respects and that his conclusion is not supported by these studies.

Although a few of the studies cited by Dr. Ozkaynak are not yet published or publicly available, I have reviewed most of the studies cited in his testimony. Indeed, I was the author of one of them (Lipfert 1984). Last fall, I prepared a detailed report on these studies, as well as on numerous other recent epidemiological studies on the health effects of sulfur oxides and particulate matter. My report was dated September 3, 1986, and it was supplemented on November 14, 1986. Enclosed for the consideration of your Subcommittee are excerpts from my report, containing the pertinent introductory and concluding sections together with my detailed reviews of the studies cited in Dr. Ozkaynak's testimony.

Turning specifically to Dr. Ozkaynak's statement, I would like to call attention to the following points:

- In claiming that the various studies cited "have repeatedly found a 2% to 5% air pollution effect" (p. 11), Dr. Ozkaynak fails to emphasize that these studies have not found consistent effects for the same pollutants. Rather, the studies have, variously, reported associations for different pollutants -- sometimes ozone, sometimes total suspended particulates, sometimes fine particles, sometimes sulfates, sometimes nitrogen dioxide, etc. -- and in many of the studies others of those pollutants were not associated with effects. Thus, the studies cannot identify which of these pollutants, if any, were responsible for the effects.

- The finding of a constant percentage for different pollutants and different types of health effects does not appear to be consistent with physiological dose-response relationships, but rather is indicative of surrogate behavior -- *i.e.*, that the effects reported were due to some variable other than the pollutants measured.

- Many of the studies cited have not adequately accounted for other known effects on mortality and morbidity, such as smoking or seasonal effects, and/or for other potential confounding factors.

- In citing my study (Lipfert 1984) as showing "a significant association between sulfate variable and mortality in one of [the] regression models" (p. 11), Dr. Ozkaynak has cited that finding out of context. That finding was only one of several possible regressions. In general, I found that sulfate was not significantly associated with mortality.

In summary, the recent epidemiological studies investigating the health effects of sulfur oxides and particulate matter have raised a number of interesting but unresolved questions. In my view, however, the available studies have not demonstrated that exposure to those pollutants at levels below the current national ambient air quality standards or exposure to sulfates at current community ambient levels is likely to cause increased mortality or morbidity in the U.S. today. Accordingly, I do not believe that there is a sound health effects basis for imposing additional controls on those pollutants.

I might also mention that on June 10-12, 1987, I participated, at EPA's invitation, in a workshop of scientists to review the potential health effects of acid aerosols, including acid sulfates. This workshop included knowledgeable scientists from a wide range of U.S. organizations, including EPA, academic institutions, consulting firms, and an environmental group (the Natural Resources Defense Council), as well as from Canada. It was agreed by the workshop participants that there is, at the present time, no reliable epidemiological evidence that acid aerosols are responsible for adverse health effects. There was a consensus that further research is needed -- not only through epidemiological studies but also through aerosol characterization work and toxicological and human clinical studies -- before any such conclusions about the health effects of acid aerosols could be drawn. This further supports my conclusion that the data currently available do not provide a reliable basis for holding these acid deposition precursors responsible for adverse health effects.

Please let me know if you have any questions about this matter or if I can provide any additional input to the Subcommittee. I am also enclosing a copy of my curriculum vitae.

Sincerely yours,

Frederick W Lipfert /jd

Frederick W. Lipfert, Ph.D.

Enclosures

cc: Richard L. Kerch, Consolidation Coal Co.

NOTE: The attachment to this letter has been retained in committee files.

STATEMENT OF E. REGIS McFADDEN, JR., M.D., TO THE SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION, SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

June 17, 1987

INTRODUCTION:

In considering the potential health effects of "acid rain" and its precursor pollutants such as sulfur dioxide (SO_2), one of the key issues facing this Subcommittee is whether brief exposures to SO_2 pose a danger to the public health, particularly to sensitive individuals such as asthmatics. The scientific information that bears on this issue derives largely from a series of human clinical studies, published since about 1980, investigating the bronchoconstrictor (i.e., airway constricting) effects of brief SO_2 exposures, especially on asthmatics. Indeed, these studies have prompted both the Environmental Protection Agency and the Senate to consider whether a new, one-hour ambient air quality standard for SO_2 should be adopted to protect asthmatics. Having reviewed the clinical studies in question and having a great deal of experience studying and treating such individuals, I would like to give you my thoughts on these issues.

I would like to begin by stating that I am vitally concerned about atmospheric pollution and am anxious to protect my family and patients from any potential harm from this source. Hence, I fully support the need for environmental regulations and fully share the concerns of this Subcommittee on that subject.

GENERAL CONSIDERATIONS:

It should be kept in mind, first of all, that at the SO_2 concentrations involved in these studies, -- generally around 1.0 ppm and below -- no effects have been observed in normal individuals. Effects have been seen only in asthmatics.

Even in asthmatics, SO_2 exposure alone at these concentrations has not produced any consequences. Rather, in order to produce responses, the exposure must be accompanied by some increased level of ventilation, usually through moderate to heavy exercise or, in some cases, through voluntary hyperventilation by mouth. This introduces confounding factors that, in my view, have not been fully delineated and that complicate the interpretation of the results.

The increase in response that is observed following exposure to SO_2 during exercise or deep breathing has given rise to the concept that it is extremely important to protect asthmatics from the potential harmful effects of SO_2 that might occur if they were to exercise in a polluted environment. While this is certainly a worthwhile aim, it does not take into consideration some important facts. For asthmatics to exercise at all without getting exercise-induced asthma, they must either undertake tasks with very low ventilations or take a bronchodilator or cromolyn sodium beforehand. In general, an asthmatic with even modest airway reactivity simply can not avoid airway obstruction from developing at moderate to high levels of ventilation without medication. At low levels of ventilation, SO_2 has little effect; and at high levels, the use of medications before or after exercise would totally abolish the problem. Hence, the situation does not appear to call for protection of a group that could only meet the ventilatory criteria necessary to produce an effect after taking a drug that would prevent it from developing in the first place. (It should also be noted that an inhaled bronchodilator, which would prevent any effects, is inexpensive, in sharp contrast to the potentially enormous costs associated with a new air quality standard.)

In addition, several factors make the applicability of the data generated thus far questionable with respect to the asthmatic population as a whole. In many of the studies the asthmatics were selected for inclusion on the basis of their sensitivity to SO_2. Those who were not sensitive to SO_2 were not studied. Hence, the overall distribution of sensitivity of asthmatics to SO_2 has not been fully delineated. Moreover, several centers have repetitively employed many of the same subjects in different studies. Indeed, the two most active groups have used "repeaters" from prior studies more than half the time, again making it difficult to draw generalized conclusions from these data.

EVALUATION OF RESPONSES OBSERVED:

Most important for present purposes is the evaluation of the medical or health significance of the responses observed in the clinical studies. Those responses typically involve transient pulmonary function changes on the order of 100-200% in specific airway resistance or, in some cases, up to about 15% in forced expiratory volume in one second (FEV_1) These changes are modest and short-lived and may not even be perceived by the subjects. They disappear rapidly after the exercise even with continued exposure to SO_2 (see, e.g., Hackney et al. 1984, Linn et al. 1984, Schachter et al. 1984). To put these types of alterations into perspective, one must appreciate that, in asthmatics, diurnal variations in lung function or the changes induced by a deep sigh, a laugh or a wide variety of other commonly encountered stimuli are often similar to or larger than those seen in the SO_2 studies. By way of comparison, asthmatic patients coming to an emergency room for treatment frequently show changes of 900-1000% in specific airway resistance.

Some of the studies have also reported that the SO_2 exposures were associated with symptomatic effects such as wheezing, shortness of breath or chest tightness. Based on my experience with asthma patients, the types of symptom data reported in the studies appear to be more in the nature of temporary annoyances rather than adverse health effects. They are reversible and short-lived, and are similar to the types of reactions which asthmatics experience frequently in response to many stimuli and which they tolerate well. The data indicate that the effects do not lead to acute asthma attacks that require emergency therapy or hospitalization for relief. This is unlike the situation with occupational exposures or with exposure to antigens (such as pollens, molds, environmental dusts, etc.).

Some studies have reported that a few subjects exposed to SO_2 used a bronchodilator after some of the exposures or had to discontinue the exposure series (e.g., Linn et al. 1983, Bethel et al. 1984, Roger et al. 1985). Those reports, however, do not show any serious problems. Use of an inhaled bronchodilator is an ordinary part of the asthmatics' experience and cannot be equated with the kind of emergency therapy or medical treatment that would indicate a significant health effect. Even the very few subjects who had to discontinue the exposures did not require any unusual medication; their bronchoconstriction reversed promptly when they ceased the exposure and inhaled a routine bronchodilator. Moreover, on an overall basis, the number of instances in which bronchodilators were required or exposures had to be terminated is remarkably small, given the fact that asthmatics preselected to be sensitive to SO_2 were being exposed during moderate to heavy exercise. Anyone who has worked with asthmatics knows that such occurrences in a few patients out of the hundreds studied do not constitute a major effect.

Other important considerations which this Subcommittee must weigh are the facts that SO_2 does not alter airway reactivity in a way that induces episodes of bronchoconstriction over prolonged periods, and that it does not have any cumulative or long-term effects. For example, several studies indicate that SO_2 does not affect airway reactivity or sensitize the airways to further exposure to this pollutant. Such studies include those that found no greater response to SO_2 when subjects were reexposed on succeeding days (Sheppard et al. 1983, Linn et al. 1984) and those finding no residual effect of the SO_2 exposure in the day or week after the exposure (Linn et al. 1983, Hackney et al. 1984, Witek et al. 1985). Further, a diminished response has been found when subjects were reexposed to SO_2 or reexercised within an hour or so on the same day (Sheppard et al. 1983, Roger et al. 1985, Kehrl et al. 1986). Equally importantly, there is no indication whatever that the responses of asthmatics to SO_2 are indicative of, or lead to, any new disease processes or any exacerbation of the asthmatics' underlying disease activity.

In contrast, exposure to antigens such as pollens, molds, and environmental dusts does alter asthmatics' airway reactivity and lead to bronchoconstrictive episodes over prolonged periods, and it does so even in the absence of exercise. Moreover, such exposure is a much more frequently operational situation, occurring in some parts of the country all year round and in other parts of the country for six months a year. This comparison offers a further perspective on the lack of importance of the measured responses in asthmatics due to SO_2 exposure during exercise.

For these reasons, on the basis of the current data, I would not regard the responses shown in exercising asthmatics with exposure to SO_2 concentrations of around 1.0 ppm and below as adverse health effects.

REAL-WORLD CONSIDERATIONS:

In view of the fact that the published studies to date have used relatively mild asthmatics, some might argue that more severe asthmatics in the general population may be more sensitive to SO_2 or may suffer worse effects in response to SO_2. There is no evidence to support such suggestions. In fact, severe asthmatics with compromised lung function would probably be unable, without pretreatment with a bronchodilator, to achieve the relatively high ventilations through exercise that appear to be necessary to produce a response to SO_2. Thus, their exercise limitations and their routine need for treatment may protect them so that they are less responsive to SO_2 in the community environment. It is noteworthy that when patients with chronic obstructive pulmonary disease were studied, they showed no responses to SO_2 during exercise (Linn et al. 1985). The authors of this study felt that this result may have been related to the low levels of ventilation that the subjects were able to achieve. If so, the findings would suggest that severely impaired asthmatics would also be resistant to the effects of SO_2, since they too would be able to achieve only a limited ventilatory response to exercise.

In any case, it would seem reasonable that before the laboratory findings of asthmatics' responses to SO_2 are accepted as showing or being indicative of adverse health effects in asthmatics, there should be some reliable epidemiological evidence to link SO_2 exposures to increased asthma attacks or other adverse health consequences in asthmatics in the real world. Yet I know of no such evidence of a relationship between SO_2 at ambient levels and adverse effects in asthmatics. Indeed, a recent epidemiological study found no association between short-term SO_2 peaks in certain areas in New York City and emergency room visits for asthma in those areas (Goldstein and Weinstein 1986).

It should also be kept in mind again that the types of responses seen in exercising asthmatics exposed to SO_2 are similar to, or less than, the reactions produced in asthmatics by a wide variety of more frequently encountered stimuli, including exercise alone, cold air alone, laughing, sighing or other forms of maximal inhalations, and exposure to antigens, powdered laundry detergents, perfumes, etc. This suggests that in the overall context of influences producing bronchoconstriction in asthmatics, exposure to SO_2 is not a significant factor.

At an EPA conference last fall, I heard discussion of an EPA analysis indicating that, with current emissions, a relatively small percentage of asthmatics living near major sources would experience one five-minute exposure to 0.5 ppm SO_2 or greater per year during moderate to heavy exercise. While I am not competent to evaluate this study, it seems to me that, if the findings are valid, they confirm the conclusion that I have just stated. In view of the relatively minor nature of the observed responses to SO_2, the many other influences affecting asthmatics, and their need for medication in order to engage in strenuous exercise anyway, the chance that some asthmatics will experience one or even a couple of peak exposures to SO_2 per year does not, in my opinion, represent a threat to their health or a public health problem.

CONCLUSIONS:

For these reasons, I do not believe, on the basis of the present data, that infrequent short-term exposures to SO_2 at current ambient levels present a risk to the public health, including the health of asthmatics, Accordingly, I do not believe that additional air quality controls or standards entailing great costs could justifiably be based on these data at the present time.

E.R. McFadden, Jr., M.D.

REFERENCES

Bethel, R.A., D. Sheppard, J. Epstein, E. Tam, J.A. Nadel, and H.A. Boushey. Interaction of sulfur dioxide and dry cold air in causing bronchoconstriction in asthmatic subjects. J. Appl. Physiol. 57:419-423 (1984).

Goldstein, I.F., and A.L. Weinstein. Air pollution and asthma: Effects of exposure to short-term sulfur dioxide peaks. Environ. Res. 40:332-345 (1986).

Hackney, J.D., W.S. Linn, R.M. Bailey, C.E. Spier, and L.M. Valencia. Time course of exercise-induced bronchoconstriction in asthmatics exposed to sulfur dioxide. Environ. Res. 34:321-327 (1984).

Kehrl, H.R., L.J. Roger, M.J. Hazucha, and D.H. Horstman. Differing response of asthmatics to SO_2 exposure with continuous and intermittent exercise. Am. Rev. Respir. Dis. (1986).

Linn, W.S., T.G. Venet, D.A. Shamoo, L.M. Valencia, U.T. Anz[illegible] C.E. Spier and J.D. Hackney. Respiratory effects sulfur dioxide in heavily exercising asthmatics: dose-response study. Am. Rev. Respir. Dis. 127:276 [illegible]83 (1983).

Linn, W.S., E.L. Avol, D.A. Shamoo, T.G. Venet, K.R. Anderson, J.D. Whynot, and J.D. Hackney. Asthmatics' responses to 6-hr. sulfur dioxide exposures on two successive days. Arch. Environ. Health 39:313-319 (1984).

Linn, W.S., D.A. Fischer, D.A. Shamoo, C.E. Spier, L.M. Valencia, U.T. Anzar, and J.D. Hackney. Controlled exposures of volunteers with chronic obstructive pulmonary disease to sulfur dioxide. Environ. Res. 37:445-451 (1985).

Roger, L.J., H.R. Kehrl, M. Hazucha, and D.H. Horstman. Bronchoconstriction in asthmatics exposed to sulfur dioxide during repeated exercise. J. Appl. Physiol. 59:784-791 (1985).

Schachter, E.N., T.J. Witek, G.J. Beck, H.R. Hosein, G. Colice, B.P. Leaderer, Leaderer, and W. Cain. Airway effects of low concentrations of sulfur dioxide: Dose-response characteristics. Arch. Environ. Health 39:34-42 (1984).

Sheppard, D., J. Epstein, R.A. Bethel, J.A. Nadel, and H.A. Boushey. Tolerance to sulfur dioxide-induced bronchoconstriction in subjects with asthma. Environ. Res. 30:412-419 (1983).

Witek, T.J., E.N. Schachter, G.J. Beck, W.S. Cain, G. Colice, and B.P. Leaderer. Respiratory symptoms associated with sulfur dioxide exposures. Int. Arch. Occup. Environ. Health. 55:179-183 (1985).

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June 17, 1987

STATEMENT OF ROLAND H. INGRAM, JR., M.D.
REGARDING EFFECTS OF SULFUR DIOXIDE ON EXERCISING ASTHMATICS

It is my understanding that the U.S. Environmental Protection Agency (EPA) is currently considering whether to revise its national ambient air quality standards for sulfur oxides to add a new, one-hour standard for sulfur dioxide (SO_2). The basis for such consideration is that laboratory studies have found transient respiratory responses in asthmatic subjects exposed for brief periods, during moderate to heavy exercise, to SO_2 concentrations in the range of 0.4 to 1.0 parts per million. I am further advised that a bill currently under consideration by the United States Senate would require EPA to adopt a one-hour SO_2 standard, based on the same laboratory findings.

I have worked with asthma and asthmatic patients for 27 years. I have also read and studied the reports of the various experiments that have examined the acute effects of combined SO_2 exposure and exercise in asthmatics. There have been about thirty such papers (citations available upon request). Statistical questions could be raised about many of the reported findings. However, I would choose not to argue with the statistical significance but to focus on the biological significance (or lack of same) of the findings thought to be positive. The added effects of SO_2 in exercising asthmatics are small and transient. The effect of

Boston Hospital for Women/Peter Bent Brigham Hospital/Robert B. Brigham Hospital/Brookside Park Family Life Center/Southern Jamaica Plain Health Center/Peter Bent Brigham School of Nursing

exercise is certainly more important than the effect of SO_2 at any level used in the recent studies.

Despite some pre-selection of subjects for SO_2 responsiveness in many studies, the changes shown in respiratory mechanics are small, reversible and short lived; they abate with rest (even when exposure continues); and tolerance is shown to repetitive exposure. While symptoms such as shortness of breath and chest tightness sometimes appear, they are transitory and do not appear to be harmful on a chronic basis, and I would not be inclined to put much weight on them. Similar effects can be produced in asthmatics by such natural and frequent stimuli as exercise in cold air, laughing, taking a deep breath and a good whiff of air from a rose garden, and they appear to be tolerated very well. The effects of SO_2 exposures would need to be compared to the effects in asthmatics produced by such other stimuli, and the interactions among these stimuli would need to be comparatively assessed, in order to place the findings into perspective. Yet this complex issue is not really dealt with in the studies to date.

I think it is fair to state that most authors have taken their best run at producing a "positive" study, and the results are, at most, merely statistically significant (with the exception of a few instances where statistically significant findings were not obtained). It is clear, however, as some of the authors seem to recognize, that the studies raise interpretational difficulties and that their findings should not be extrapolated beyond the laboratory settings.

The measured effects in these SO_2 studies have not been shown to be of importance in terms of producing short or long term health consequences. I know of no evidence that such responses increase either the frequency or severity of adverse short term effects such as asthmatic attacks or that they lead to any long term disease processes. In fact, the epidemiological studies designed to disclose a relationship between SO_2 and health effects, including those related to asthma, have not found any reliable association between SO_2 (predominantly or alone) and such short term or long term health consequences in asthmatics (see, e.g., Goldstein and Dulberg: JAPCA 31: 370-376, 1981; Goldstein and Weinstein: Environ. Res. 40:332-345, 1986).

In June 1982, after reviewing the studies on SO_2 and asthma available at that time, I concluded in a report to EPA that, on the basis of the then-current information, I "would not be inclined to accept the responses induced in asthmatics in the laboratory studies with the SO_2 concentrations in question here as indicative of significant adverse health effects in asthmatics." I further expressed "deep concern, if not dismay, that environmental standards entailing great costs could possibly be based upon these data." After reviewing the SO_2 studies that have become available since that time, I see no reason to modify these statements. Indeed, study of the recent literature serves to engender even greater caution, to confirm the apparent lack of health significance of the measured effects reported, and to reiterate the invalidity of extrapolating findings from such studies to the process of establishing more stringent air quality standards. In the absence of epidemiological evidence of an adverse effect of SO_2 on asthmatics, the findings of the laboratory studies to date cannot serve as a scientifically supportable basis for drawing sweeping conclusions about the public health impact of SO_2 exposures.

Some have expressed concern that the general population may include more sensitive or more severe asthmatics than those employed in the laboratory studies. There are, however, no data on the potential effects of SO_2 on such individuals. It is possible, for example, that more severe asthmatics may not experience such SO_2-induced effects because their disease may limit their ability to achieve a sufficiently high exercise rate without medication. In the absence of data on the effects on such individuals and in the absence of any epidemiological evidence, any extrapolation from the present studies to postulate the potential effects on such individuals would have no scientific basis.

In short, it is my opinion that the establishment of new and more stringent regulations or standards for SO_2, based on the available evidence on SO_2 and asthma, is not necessary to protect the public health and would not be scientifically justified.

Roland H. Ingram, Jr., M.D.

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June 24, 1987

REPORT ON THE HEALTH EFFECTS OF ACID AEROSOLS

H. Daniel Roth, Ph.D.

Testimony was presented to the Subcommittee on Environmental Protection of the Senate Committee on Environment and Public Works on February 3, 1987 concerning "Health Effects of Precursors of Acid Deposition." This testimony contained allegations about the effects of air pollution generally and of sulfates and other pollutants specifically. Although it was not clear from that testimony, the scientific community is essentially in agreement that the threat, if any, from ambient sulfates arises from the acid sulfates that constitute the bulk of acid aerosols. Therefore, any response to that testimony must address acid aerosols.

On June 10 to 12, 1987, I joined, at the invitation of the Environmental Protection Agency (EPA), 20 or so other scientists in a workshop to review the existing data concerning health effects and acid aerosols. The focus of the workshop was a draft document prepared by EPA and its consultants entitled "An Acid Aerosols Issue Paper: Health Effects and Aerometrics." A list of the participants is attached. It was the consensus of the workshop, with which I agree, that the currently available scientific data provide no evidence of an association between ambient acid aerosols and adverse human health effects. Indeed, many studies have reported no effects of acid aerosols, even in sensitive groups such as asthmatics, at concentrations over twice those that have been measured in ambient air. Nevertheless, we recommended that research on acid aerosols continue. Some of the most critical factors considered at the workshop are discussed below.

AMBIENT EXPOSURES

The EPA Issue Paper and the workshop participants agreed that while average contemporary United States acid aerosol levels are between 0 and 5 ug/m3, with occasional peaks of approximately 40 ug/m3, more research is necessary to characterize actual ambient exposure to acid aerosols. Nevertheless, average human exposures will be less than 5 ug/m3; and there is no evidence that people are ever exposed to concentrations above 45 ug/m3 even for a brief periods.

HEALTH EFFECTS EVIDENCE

The EPA Issue Paper and the workshop each considered the three relevant types of health evidence: epidemiology; controlled laboratory studies of humans; and toxicology. Epidemiological studies of children at three summer camps in the U.S. reported no association between pulmonary function and ambient acid aerosol concentrations of up to 6 ug/m3. (Lippmann, et al. (1983); Bock et al. (1985); Lioy, et al. (1985); Lioy, et al. (1987); Spektor, et al. (1987).) It was also the consensus that other epidemiology examining the effect of ambient sulfates and other pollutants (for example, the Bates and Sizto (1986) and Ware et al. (1986) studies of respiratory symptoms) provide no reliable information on the effects of acid aerosols. These studies provide no evidence that typical acid aerosol exposures are associated with effects even in a sensitive study population. Given the limited data base on ambient acid aerosols, the workshop participants recommended that more research be done.

Human clinical studies have examined short-duration exposures to levels of acid aerosols, chiefly sulfuric acid, much higher than those found in ambient air. In normal healthy subjects, no pulmonary function effects are reported from exposures up to approximately 1000 ug/m3, a concentration that is more than 200 times typical ambient concentrations and 25 times peak ambient concentrations. (Sackner et al. (1978); Leikauf et al. (1981); Kerr, et al. (1981); Horvath, et al (1982); Horstman, et al. (1982); Stacy, et al (1983); Utell, et al. (1984, 1986).)

The response of sensitive subjects has also been studied. While some studies have reported changes in pulmonary function in exercising or mouth-breathing asthmatics exposed to sulfuric acid aerosol at levels of approximately 400 ug/m3, several investigators working with asthmatics exposed to 100 ug/m3 acid aerosol while exercising or at rest report no pulmonary function effects. (Sackner, et al. (1978); Avol, et al. (1979); Utell et al. (1982, 1983, 1984, 1986); Spektor, et al. (1985); Linn, et al. (1986); Horstman, et al. (1986).) A single investigator did report small to moderate decreases in pulmonary function measurements of exercising asthmatics administered 100 ug/m3 of acid aerosols for 40 to 50 minutes (Koenig, et al. (1983, 1985)). These studies employed a questionable statistical method and a mouthpiece or facemask to administer the acid aerosols, both of which could have affected her results.

In short, there is no human clinical evidence of any effects of acid aerosols at concentrations below 100 ug/m3, even in sensitive groups. While there are a few reports of changes at 100 ug/m3, this evidence was considered uncertain and unclear; many studies have found no effects at this concentration even in sensitive groups such as asthmatics. In any case, 100 ug/m3 is still well above any current ambient levels. Again, the workshop called for further research on these issues.

Finally, the workshop participants considered the toxicological studies of the effects of acid aerosols, principally sulfuric acid, on animals. Between 100 and 1000 ug/m3 of sulfuric acid, some toxicological studies reported effects and some did not, even within the same species. Below 100 ug/m3, there is no evidence of effects of acid aerosols. Because of the contradictory nature of the evidence and the unclear relevance of these animal findings to human exposures, the toxicological studies were viewed mainly as indicative of fruitful avenues to explore in further research.

CONCLUSION

In summary, while neither I nor the other participants at the workshop can state with certainty the maximum ambient acid aerosol level at which the public health is adequately protected, we were in agreement that the available data provide no evidence of an association between ambient acid aerosols and adverse human health effects. While the many studies that reported no effects in people exposed to acid aerosol levels equal to or higher than those found in the ambient air provide evidence that ambient acid aerosols may not affect human health, additional study of acid aerosols would be helpful to clarify this issue.

REFERENCES

Avol, E.L., M.P. Jones, R.M. Bailey, H.N. Chang, M.T. Kleinman, W.S. Linn, K.A. Bell, and J.D. Hackney. Controlled exposures of human volunteers to sulfate aerosols: Health effects and aerosol characterization. Am. Rev. Respir. Dis. 120:319-327 (1979).

Bates, D.V., and R. Sizto. A study of hospital admissions and air pollutants in Southern Ontario. In: Aerosols: Research, Risk Assessment and Control Strategies (S.D. Lee _et al_., eds.), Lewis Publishers, Inc., Chelsea, MI, pp. 767-777 (1986).

Bock, N., M. Lippmann, P. Lioy, A. Munoz, and F.E. Speizer. The effects of ozone on the pulmonary function of children. In: Evaluation of the Scientific Basis for Ozone/Oxidants Standards: Proceedings of an APCA International Speciality Conference (S.D. Lee, ed.), November 1984, Houston, TX. Air Pollution Control Association, Pittsburgh, PA, pp. 297-308 (1985).

Horstman, D., M. Hazucha, E. Haak, and R. Stacy. Effects of submicronic sulfuric acid aerosol on human pulmonary function. Arch. Environ. Health 37:136-141 (1982).

Horstman, D.H., H. Kerhl, P. Weinberg, and L.J. Roger. Pulmonary function changes for asthmatics performing exercise while exposed to combined sulfur dioxide and sulfuric acid: An interim report. In: Aerosols: Research, Risk Assessment and Control Strategies (S.D. Lee _et al_., eds.), Lewis Publishers, Inc., Chelsea, MI, pp. 703-709 (1986).

Horvath, S.M., L.J. Folinsbee, and J.F. Bedi. Effects of large (0.9 um) sulfuric acid aerosols on human pulmonary function. Environ. Res. 28:123-130 (1982).

Kerr, H.D., T.J. Kulle, B.P. Farrell, L.R. Sauder, J.L. Young, D.L. Swift, and R.M. Borushok. Effects of sulfuric acid aerosol on pulmonary function in human subjects: An environmental chamber study. Environ. Res. 26:42-50 (1981).

Koenig, J.Q., W.E. Pierson, and M. Horike. The effects of inhaled sulfuric acid on pulmonary function in adolescent asthmatics. Am. Rev. Respir. Dis. 128:221-225 (1983).

Koenig, J.Q., M.S. Morgan, M. Horike, and W.E. Pierson. The effects of sulfur oxides on nasal and lung function in adolescents with extrinsic asthma. J. Allergy Clin. Immunol. 76:813-818 (1985).

Leikauf, G., D.B. Yeates, K.A. Wales, D. Spektor, R.E. Albert, and M. Lippmann. Effects of sulfuric acid aerosol on respiratory mechanics and mucociliary particle clearance in healthy nonsmoking adults. Am. Ind. Hyg. Assoc. J. 42:273-282 (1981).

Linn, W.S., E.L. Avol, D.A. Shamoo, J.D. Whynot, K.R. Anderson, and J.D. Hackney. Respiratory responses of exercising asthmatic volunteers exposed to sulfuric acid aerosol. JAPCA 36:1323-1328 (1986).

Lioy, P.J., T.A. Vollmuth, and M. Lippmann. Persistence of peak flow decrement in children following ozone exposures exceeding the national ambient air quality standard. JAPCA 35:1068-1071 (1985).

Lioy, P.J., D. Spektor, G. Thurston, K. Citak, N. Bock, F.E. Speizer, C. Hayes, and M. Lippmann. The design considerations for ozone and acid aerosol exposure and health investigations: The Fairview Lake summer camp-photochemical smog case study. Environ. Int., in press (1987).

Lippmann, M., P.J. Lioy, G. Leikauf, K.B. Green, D. Baxter, M. Morandi, B.S. Pasternack, D. Fife, and F.E. Speizer. Effects of ozone of the pulmonary function of children. In: International Symposium on the Biomedical Effects of Ozone and Related Photochemical Oxidants (S.D. Lee _et al_., eds.), March 1982, Pinehurst, NC. Princeton Scientific Publishers, Inc., Princeton, NJ, pp. 423-446 (1983).

Sackner, M.A., D. Ford, R. Fernandez, J. Cipley, D. Perez, M. Kwoka, M. Reinhart, E.D. Michaelson, R. Schreck, and A. Wanner. Effects of sulfuric acid aerosol on cardiopulmonary function of dogs, sheep, and humans. Am. Rev. Respir. Dis. 118:497-510 (1978).

Spektor, D.M., G.D. Leikauf, R.E. Albert, and M. Lippmann. Effects of submicrometer sulfuric acid aerosols on mucociliary transport and respiratory mechanics in asymptomatic asthmatics. Environ. Res. 37:174-191 (1985).

Spektor, D.M., M. Lippmann, P.J. Lioy, G.D. Thurston, K. Citak, D.J. James, N. Bock, F.E. Speizer, and C. Hayes. Effects of ambient ozone on respiratory function in active normal children. Am. Rev. Respir. Dis., in press (1987).

Stacy, R.W., E. Seal, Jr., D.E. House, J. Green, L.J. Roger, and L. Raggio. A survey of effects of gaseous and aerosol pollutants on pulmonary function of normal males. Arch. Environ. Health 38:104-115 (1983).

Utell, M.J., P.E. Morrow, and R.W. Hyde. Comparison of normal and asthmatic subjects responses to sulphate pollutant aerosols. In: W.H. Walton, ed., Inhaled particles V: Proceedings of an international symposium organized by the British Occupational Hygiene Association; Sept. 1980; Cardiff, United Kingdom, Ann. Occup. Hyg. 26:691-697 (1982).

Utell, M.J., P.E. Morrow, D. M. Speers, J. Darling, and R.W. Hyde. Airway responses to sulfate and sulfuric acid aerosols in asthmatics: An exposure-response relationship. Am. Rev. Respir. Dis. 128:444-450 (1983).

Utell, M.J., P.E. Morrow, and R.W. Hyde. Airway reactivity to sulfate and sulfuric acid aerosols in normal and asthmatic subjects. JAPCA 34:931-935 (1984).

Utell, M.J., and P.E. Morrow. Effects of inhaled acid aerosols on human lung function: Studies in normal and asthmatic subjects. In: Aerosols: Research, Risk Assessment and Control Strategies (S.D. Lee _et al_., eds.), Lewis Publishers, Inc., Chelsea, MI, pp. 671-681 (1986).

Ware, J.H., B.G. Ferris, D.W. Dockery, J.D. Spengler, D.O. Stram, and F.E. Speizer. Effects of ambient sulfur oxides and suspended particles on respiratory health of preadolescent children. Am. Rev. Respir. Dis. 133:834-842 (1986).

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Report on Nationwide Sulfur Dioxide Exposure Assessment for Asthmatics Living in the Vicinity of United States' Power Plants

By

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23 June 1987

The United States Senate is considering a bill requiring the EPA to adopt a one-hour ambient standard for sulfur dioxide. Such a requirement would be based on observations made during laboratory experiments that employed moderately to heavily exercising asthmatics exposed for brief periods to concentrations in the range of approximately 0.4 to 1.0 part sulfur dioxide per million parts of clean air (ppm).

I have reviewed the most recent statements of E. Regis McFadden, Jr., M.D. and Roland H. Ingram, Jr., M.D., summarizing their opinions of the public health effects of sulfur dioxide exposures, and the November 1986 report of D. Warner North and Deborah Amaral of Decision Focus, Incorporated, summarizing the findings of other researchers on the health effects of low-level sulfur dioxide exposures. That information indicates that at sulfur dioxide concen- trations in the vicinity of 0.5 ppm, brief (5- to 10-minute) periods of exposure of exercising asthmatics produce responses in a small fraction of the study population; the responses are not of significance to their health.

I believe I can broaden the perspective by providing estimates of the fraction of the asthmatic population living in the vicinity of major sources, who, while exercising, might be exposed to sulfur dioxide concentrations in the range under consideration by the Senate.

Specifically, my colleagues and I at Systems Applications, Inc. have performed analyses for the EPA and are now completing an analysis for the Utility Air Regulatory Group (UARG)[1] that estimates, given current ambient sulfur dioxide standards, the percentage of asthmatics living and exercising near major sources who will be exposed for at least one 5-minute period per year to sulfur dioxide concentrations of 0.5 ppm or greater.

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[1] The Utility Air Regulatory Group (UARG) is a voluntary, nonprofit, unincorporated, ad hoc group consisting of 68 electric utilities, the Edison Electric Institute, the National Rural Electric Cooperative

Our analysis for the EPA considered five utility power plants selected because they were believed to be among those plants producing the highest exposure risks. That analysis, which intentionally incorporated conservative modeling assumptions, indicated that between 0.2 and 14 percent of asthmatics residing in the vicinity of the modeled plants would be exposed to 0.5 ppm or greater sulfur dioxide for one 5-minute period per year.[2]

Because the EPA exposure analysis was limited to considerably less than 1 percent of U.S. power plants and incorporated into its modeling the highly conservative assumption that power plants operate continuously at 100 percent of their design capacity, UARG retained our firm to perform an exposure assessment that builds upon the EPA work[3] but is more comprehensive and realistic[4] in its approach.

Association, and the American Public Power Association. UARG's purpose is to participate on behalf of its members in federal air pollution control regulatory activities and in related litigation.

[2] The EPA analysis consisted of two parts: (1) air quality dispersion modeling of each power plant to estimate the probability of exceeding a 0.5 ppm sulfur dioxide concentration for a 5-minute period for 180 locations within 20 km the power plant for each of the 43,800 hours in a five-year period, and (2) exposure modeling to estimate the fraction of asthmatics living in the vicinity of each plant that are exposed one or more times, while exercising, to 5-minute sulfur dioxide concentrations that exceed 0.5 ppm. My colleagues and I performed the first part; we provided the EPA the probability of exceedance results to estimate asthmatic exposures. The results for both parts are presented in the EPA report entitled "An Analysis of Short-Term Sulfur Dioxide Population Exposures in the Vicinity of Utility Power Plants," Strategies and Air Standards Division, Research Triangle Park, North Carolina 27711, 12 September 1986 (Infra, footnotes 3 and 4 also).

The UARG analysis, which should be available this summer, takes into account the impact of every utility-owned coal- or oil-fired power plant in the continental United States larger than 25 MWe--a total of approximately 1300 coal-fired and 500 oil-fired boilers. Approximately 25 of these prototypical plants are being modeled in detail using site-specific plant operating characteristics, meteorological data, and demographic data. These plants were chosen because of the representativeness of their (1) ability to disperse sulfur dioxide emissions under expected worst-case (unstable) meteorological conditions, and (2) plant operating characteristics (e.g., a base-load plant or one that operates intermittently).

Each prototypical plant is taken to be representative of a group of plants with similar dispersion and operating characteristics. Concentrations of sulfur dioxide around the plants in each group are then extrapolated from the modeling results for the prototypical plants. To reduce uncertainties associated with the extrapolations, as much plant-specific information as possible is used. For example, we are using site-specific data on population and prevailing wind direction during unstable meteorological conditions. In addition, we are making adjustments to reflect the influences of plant-specific fuel and load characteristics.

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[3] The UARG analysis uses the same air quality dispersion model (CRSTER with the ExEx postprocessor) that we used in EPA's initial assessment, and uses the technique adopted by the EPA for estimating peak 5-minute sulfur dioxide levels from the one-hour concentrations provided by the CRSTER model. To calculate exposures, the UARG analysis uses a model (a modification of the EPA's Human Exposure Model (HEM)) that has been demonstrated to produce results equivalent to those produced by the NAAQS Exposure Model (NEM) used in the initial EPA exposure analysis (Supra, footnote 1).

[4] For example, in the initial EPA analysis (Supra, footnote 1), it was assumed, for simplicity, that the modeled plants operated continuously at 100 percent of their design capacity (i.e., load) throughout the period modeled. The UARG analysis takes into account actual load practices. We have demonstrated that when actual load data are used, the number of exposures per year is reduced by 60 to 160 percent. Thus, the fraction of asthmatics likely to experience an exposure greater than 0.5 ppm for a 5-minute period while exercising appears to be much smaller than that suggested by the EPA's initial analysis.

The preliminary results from the nationwide exposure assessment indicate that, given current sulfur dioxide ambient standards, a very small percentage of asthmatics will, when exercising outdoors, be exposed to a concentration of 0.5 ppm or greater for one or more 5-minute periods per year. Considering the health effects information discussed by Dr. North, even fewer asthmatics so exposed will experience a response. It appears that more than 99.5 percent of asthmatics are being protected by the existing ambient standards for sulfur dioxide from a potential response to a 5-minute exposure to 0.5 ppm of sulfur dioxide in a year. These preliminary results account for more than 90 percent of the base-load coal- and oil-fired electrical generating capacity in the continental United States and more than 90 percent of the asthmatic population living in the vicinity of these sources.

The complete nationwide exposure and risk assessment results will be available soon, providing substantial additional information that should be fully evaluated (as staff at the EPA has informed me it intends to do) before any action is taken to modify the current ambient standards for sulfur dioxide.

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On behalf of the

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Before the

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of the

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NATIONAL
CLEAN AIR
COALITION

My name is Michael Oppenheimer, and I am a senior scientist at the Environmental Defense Fund. Since 1981, I have led EDF's program of research and policy analysis on acid rain. Before 1981, my research focused on atmospheric physics at the Harvard-Smithsonian Center for Astrophysics. I am testifying today on behalf of the National Clean Air Coalition, as well as my own organization.

Acid deposition is causing broader damage to the environment than any other environmental problem. The failure of the federal government to develop a comprehensive policy for the reduction of the emissions of sulfur dioxide and nitrogen oxides which cause acid rain has led to the sacrifice of natural resources and a continuing threat to human health. In contrast to this policy vacuum at the federal level, we find increasing efforts at the state level, in Canada, and in Europe to control these pollutant emissions in order to reduce acid deposition. The time for action at the federal level is long overdue. Therefore, the Coalition and EDF support legislation S.321 and S.300, aimed at controlling acid pollutants and sharply reducing acid deposition.

The scientific case for reducing acid emissions was documented in a 1981 report published by the National Academy of Sciences. This report established that acidification of surface waters had occurred in Eastern North America and that emissions from fossil fuel combustion, particularly electric power plants, were responsible for the acidification. Furthermore, the report noted that a reduction in acid deposition levels of more than one-half would be needed to avert or reverse acidification of sensitive waters. Although much research and analysis has occurred over the last six years, the basic scientific picture constructed by the Academy panel remains intact and its central recommendation remains pertinent: "The control of emissions of sulfur and nitrogen oxides from fossil fuels is necessary to halt the acidification of sensitive aquatic systems."

Knowledge gained over the last six years has served to strongly re-enforce this recommendation. Much of this information is presented in two succeeding Academy reports. A 1983 Academy report established that reductions in emissions of sulfur dioxide would produce proportional reductions in deposition of sulfate and the acidity of precipitation, averaged over substantial areas of the U.S. This finding was confirmed by a "natural experiment" described in a series of peer-reviewed articles in Science and Nature by EDF scientists.

A 1986 Academy report established in detail the links in a cause-and-effect chain linking sulfur dioxide emissions at one end to the disappearance of fish populations at the other. Links lying in between included higher levels of respirable acid particles in air, lower visibility, more acidic precipitation, and more acidic lakes and streams.

A roster of other important scientific findings has developed over the last few years. I shall briefly summarize some of these findings below.

1. In an article published in Science in 1985, Schindler et al. found that the aquatic food chain is disrupted when pH drops below about 6. Thus, lakes and streams suffer biological damage at low levels of acidity corresponding to pH well above the value of 5.3 often chosen to designate a lake as "acidic".

2. E.P.A.'s 1986 study "Characteristics of Lakes in the Eastern U.S." indicated the large geographical extent of the impact of acid rain. Twenty percent of the lakes in sensitive areas, totaling more than 3,000, have alkalinities below 50 ueq/L. Most of these lakes can be assumed to have already been seriously disturbed by acid rain and to have pH below the value of 6 at which food chain disruption occurs. As many as one thousand lakes may have pH below 5.0, with extensive biotic disruption, and loss of fish populations. Sixty to seventy percent of lakes in the Northeast and in upper Minnesota and Wisconsin are sensitive to acidification (alkalinity below 200 ueq/L). Lakes acidified by acid rain extend from Wisconsin to Maine, and down to Florida. The survey does not include streams or lakes smaller than ten acres. Nor does it indicate sensitivity to epidsodic acidification. In spite of these limitations, the broad extent of resources damaged and at risk is apparent.

3. Lakes in the Western U.S. were shown to be vulnerable to acidification in a parallel EPA survey. A large percentage of lakes, more than one-third in California, have alkalinities below 50 ueq/L, and are highly sensitive to acid deposition. Studies of lakes near Crested Butte, Colorado by Dr. John Harte of the University of California indicate that episodic acidification may already be occurring in limited areas of the West.

4. Studies by Dr. James Galloway and co-workers[1/] at the University of Virginia indicate that waters in the Southeast will slowly acidify as soils lose their capacity to absorb sulfur. These studies indicate clearly that for many waters, damage will increase even if emissions remain constant.

5. Studies carried out by EDF and others (see attachment) in connection with an acid rain control rulemaking in Minnesota indicate that a deposition level below 12 kg/hectare-yr is needed to protect the most sensitive lakes. This value is consistent with an emissions reduction of nearly two-thirds, underscoring the need for largescale, long term sulfur emissions decreases.

6. Studies of nitrate levels in surface waters, including the New York City drinking water supply, indicate large increases in nitrate over the last several decades. Continued increases in nitrate run the risk of occurrence of methemoglobanemia in infants in the future. This study was carried out under my supervision at the EDF. (See attachment.)

Increasing nitrate in many waters can be linked directly to acid deposition originating in NO^x emissions. Such emissions also enhance levels of regional ozone, linked to forest and human health damage.

7. A draft EPA study, never published in final form, indicated that material corrosion damages due to acid pollution may exceed $7 billion per year in just 17 states.

8. A panel of medical experts testified before this committee that respiratory damage due to acid pollutants is widespread. This evidence indicates the need for a separate acid aerosol standard.

9. Forest decline has been confirmed at both low and high altitudes in U.S. Forest Service studies (Sheffield et al. "Pine Growth Reductions in the Southeast"). Widespread exposure to acid fog makes acid pollution the primary suspected cause of decline in forests at higher elevations, while a combination of ozone and acid pollutant may be responsible at low elevations.

10. Several studies indicate that much of the sulfur deposited in the northeast originates in emissions from midwest power plants. The empirical studies of Dr. Kenneth Rahn of the University of Rhode Island are the most recent and most direct evidence in this vein.

11. Studies in the U.S. and Canada, compiled by the Isaak Walton League, suggest a link between acid deposition and the

decline of the black duck (cf. "Acid Rain and Water Fowl: the Case for Concern in North America").

Let me summarize the implications of these findings. Acid deposition is damaging surface waters across much of the eastern U.S. and threatens waters in the West. Populations of fish and other aquatic organisms are being harmed and, in some cases, eliminated. Larger species which depend on those organisms, such as ducks, are also vulnerable. A cause and effect link has been established between sulfur dioxide emissions, levels of acid rain, and biological damage. Much of the acid deposition in the northeast originates in Ohio Basin power plants. Forests are suffering from a witches brew of ozone and acid pollution, much of which can be eliminated if SO^2 and NO^x are contfolled. Reductions of SO^2 emissions approaching 2/3 are needed to protect sensitive waters. Acidification damage will increase, particularly in the Southeast, even if emissions do not increase. Acid pollutants are a broad insult to human health, and nitrate may become an increasing problem in the next few decades. Finally, the cost of control of these pollutants is far overshadowed by the price of the damages to the human and natural environment.

With this information in hand, six states, Canada, and several European nations have acted to stem acid rain's onslaught. Minnesota, New York, Massachusetts, New Hampshire, Wisconsin and Michigan will cut SO^2 emissions by 1/4-1/2 over the next few years. Ontario will cut emissions by 2/3. The

Mexican government is constructing SO^2 controls on its Nacozari smelter just South of the U.S. border. Germany has begun to cut SO^2 by more than half and is establishing a broad-based program of boiler modifications to reduce NO^x emissions. Austria has just installed a selective catalytic reduction unit on a new power plant to reduce NO^x emissions. Even the United Kingdom is now committed to a limited SO^2 scrubbing program. Against this background of attempts to deal with the problem, the U.S. government remains an outlaw, guilty of negligence toward the natural environment. It is time for this indifference to end. Reductions in emissions of SO^2 and NO^x from mobile and stationary sources, achieved through use of low sulfur fuels, sulfur and nitrogen control technology and end use efficiency (conservation), should begin promptly, to stem the destruction of ecosystems and the hemhorrage of dollars due to the onslaught of acid rain.

1/ See for instance, Acid Precipitation: the impact on two headwater streams in Shenandoah National Park, Virginia, P.W. Shaffer and J.N. Galloway, Int. Symp. Hydrometeor. June, 1982.

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STATEMENT OF

John A. Knebel, President

American Mining Congress

Before

The United States Senate

Committee on Environment & Public Works

Subcommittee on Environmental Protection

Hearing on

S.300 ("The New Clean Air Act"),

S.316 ("The Acid Rain and Sulfur Emissions Reduction Act")

and

S.321 ("The Acid Deposition Control Act")

June 17, 1987

STATEMENT OF
JOHN A. KNEBEL, PRESIDENT
AMERICAN MINING CONGRESS
JUNE 17, 1987

Mr. Chairman and Members of the subcommittee. I am John Knebel, president of the American Mining Congress (AMC).

AMC is a broad-based trade association with more than 400 members with operations located throughout the United States. AMC represents the Nation's mining and minerals processing industries -- including producers of coal; nonferrous and precious metals; and agricultural and industrial minerals. It also represents manufacturers of mining equipment, as well as financial entities and engineering firms that serve the mining industry.

AMC appreciates this opportunity to express the views of the mining industry on acid rain legislation now being considered by this subcommittee.

These acid rain bills transcend environmental issues. They are, in fact, statements of national industrial policy, and they need to be recognized and appreciated as such.

The bills are statements of industrial policy, because -- as we all know -- acid rain legislation, in whatever form, will result in significant added expenditures to American industry, including substantial new costs for emission controls and process changes and in the delivered price of electricity.

Because electricity is an important component in the price of most, if not all, goods produced, acid rain legislation will have profound consequences in terms of economic growth, industrial competitiveness, international trade, and government revenues -- all issues of importance to the Congress and the Nation in other contexts.

We have certain, though imperfect ideas, as to the direct costs of acid rain legislation. For example, the Environmental Protection Agency (EPA) has estimated the costs to utilities for sulfur dioxide emission reductions that would be required by certain of the pending bills. These annualized costs are:

- $2.3 to $3.2 billion per year for S.316;
- more than double these costs for S.321; and
- triple these costs for S.300.

While these estimated costs are staggering, they cannot be considered the only economic consequences of acid rain legislation. The costs that really count -- namely, the increased price of U.S. goods and the potential losses to our international competitiveness -- have not been examined by the Congress.

Failure to consider these legislative proposals -- as well as other environmental and regulatory proposals -- from this broader perspective will contribute, we fear, to a further flight of industrial operations and jobs and thus to an accelerated erosion of our mining, industrial and tax base.

Such an erosion of our industrial base must eventually lead to a significant lowering of this country's standard of living. Indeed, a decline has already begun. In constant dollars, average weekly income in 1970 was $187, while in 1986 the average was $171, a decline of nine percent. In the same period, prices have increased nearly 200 percent, based on the Consumer Price Index for all items.

It is not by happenstance that the pressure for protectionist legislation has increased steadily over the last several years or that national competitiveness has been the focus of so much discussion in Congress recently. The rise of these issues results from a significantly changed economic landscape from that which existed 15 years ago. And we in this country must face up to this change, if we are to maintain the prosperity that we have taken for granted since World War II.

In 1970, when the Clean Air Act as we now know it was first enacted, there were -- as there had been since 1945 -- effectively two marketplaces in the world: the United States and everybody else. With increasing speed, the world has changed into a single, global economy. As a result, this country can no longer afford business as usual. American industry, including the mining industry, if it is to survive in this changed world, must compete, both at home and abroad, more vigorously than ever.

AMC supports such competition. It assures that American consumers will be offered products at the best possible price. However, we also understand that this adjustment to a more competitive world is not easy. Our knowledge has come as a result of the major restructuring undertaken by the domestic mining industry in an effort to become more competitive. Since 1980, employment in metal and nonmetal mining has declined by 56 and 15 percent, respectively. In 1986, imports of nonfuel minerals exceeded exports by $15 billion, a 66 percent increase over 1981.

Our industry is not alone. Other industries, including steel and automobiles, have also restructured. And in many sectors, American workers have played their part through unemployment and reduced pay and benefits.

While painful, these efforts have resulted in positive gains. For example, in the last 10 years, productivity has risen dramatically in our industry: in coal, 50 percent; in iron, 80 percent; and in copper, lead and zinc, 100 percent.

But it is not just industry and workers that should face up to this change. In formulating public policy on environmental and other issues, this new economic reality should be taken into account by the government, including Congress. We simply can no longer, as a Nation, afford the luxury of ignoring the costs of legislative and regulatory programs, on the assumption that such costs, no matter how large, can be borne because they will be passed on to consumers. This assumption is no longer true, if it ever was.

Regulated utilities may be able to pass their costs on to their customers; but when their industrial customers are not similar monopolies, the same cannot be said, especially if the marketplace in which they operate is highly competitive and includes foreign producers.

Certainly, the assumption of an automatic cost pass-through has never been valid in raw materials industries, such as metals and mining. These industries have always had to compete in a world market and at world prices, where additional costs must be absorbed if a company is to sell its products. Eventually, the alternative is to close operations, when such sales cannot be made at a reasonable profit, which is precisely what has occurred in the metals industry. Since 1981, production capacity has declined by about one-quarter in copper and over one-third in zinc.

This is why the acid rain bills and proposals to lower the National Ambient Air Quaility Standards for sulfur dioxide are so important to the mining industry: They threaten to undo all the productivity and competitiveness gains that we have made with the help of our workers over the last 10 years.

If American industries, including the mining industry, are to compete, all increased costs, including new regulatory costs, must be kept to a minimum and be absolutely necessary. It is in this context that we oppose acid rain legislation. In our view, the acid rain bills ignore today's economic realities. They also ignore the considerable environmental progress made by coal-fired utilities and nonferrous smelters in reducing emissions.

If there were evidence that the continent faced an ecological emergency, the precipitous actions called for in some of these bills might be justified, notwithstanding all that I have said with respect to the costs. However, as EPA Administrator Lee Thomas testified before you on April 22nd, the evidence does not support the existence of such an emergency. Even in the one area where there may be some potential for environmental concern (that is, increased acidification of a few lakes in the Northeast), EPA's research shows that any such change is very slow, with meaningful effects measured in terms of a half century. Where particular lakes are deemed endangered, interim measures, such as liming, are available and should be used.

With respect to each of the other environmental concerns raised since the debate on this issue began in 1979, the National Acid Precipitation Assessment Program shows no evidence to support the early alarm calls. An example is acid rain in the West. Several years ago, it was charged that acid rain, primarily from smelters, was destroying lakes and forests in the Alpine regions of the Rocky Mountains. Most recently, however, in a letter to Senator Alan Simpson (a copy of which is attached), the Environmental Defense Fund has conceded that acid rain in the West is no longer an issue of concern. This conclusion is supported by EPA's study of western lakes.

Similarly, there is no public health crisis from emissions of the precursors of acid rain, particularly sulfur dioxide. EPA's Clean Air Scientific Advisory Committee (CASAC) has recently considered the relevant scientific data as a part of that agency's review of its existing health-based National Ambient Air Quality Standard for sulfur dioxide. Based on that review, and in particular studies of children, CASAC recommended only that the Administrator consider a new one-hour standard for short-term peak exposures to sulfur dioxide.

As S.1351 comes close to compelling EPA to adopt a one-hour standard for sulfur dioxide, and other bills would do so directly, we would like to emphasize certain facts from the record before CASAC, as fully developed in the attached summary of the medical evidence before those scientists:

- First, only asthmatics have shown responses to short-term peak concentrations of SO_2 (about 1.0 part per million for five to ten minutes) in clinical tests, and then only during moderate to heavy exercise.

- Second, the responses encountered in these clinical tests are changes in pulmonary function and, in some cases, symptomatic effects, such as wheezing and chest tightness. These responses subside when exercise stops, even when SO_2 continues to be present.

- Third, a majority of asthmatics are not ordinarily exposed to SO_2 levels encountered in the clinical tests. According to EPA, between 0.2 and 14 percent of asthmatics, who are in turn no more than four percent of the total population, would encounter such levels, at most, about once a year.
- Fourth, responses of a similar or greater magnitude are encountered by asthmatics daily as a result of other stimuli.

This is not evidence of a public health crisis. Evidence of responses of this magnitude does not even amount to an "endangerment of public health" under the Clean Air Act. Nor should it. As I emphasised in my letter of February 13th to you, Mr. Chairman (a copy of which is attached), it is important to look more broadly than just at the immediate effects, especially where, as here, the effects are so limited in severity and extent. In our view, it is also necessary to consider the general welfare effects, including impacts on public health that would result from the economic and social dislocations of a lowered standard.

Given the lack of evidence of an immediate environmental disaster or of any significant health impact, and the very large potential economic impact, it is, in our opinion, unwise to proceed with legislation until a problem, if any, is determined to exist. Legislation could then be fashioned in a more cost-effective way to solve the identified problem and to minimize or eliminate potential adverse economic consequences.

In the meantime, the issue is not being neglected. Under the Clean Air Act regulatory programs are in place to control sulfur dioxide and other emissions that contribute to acid rain, and those programs are working. Mean emissions of sulfur dioxide from coal-fired utilities have declined by 42 percent since 1976 according to EPA. The same is equally true for nonferrous smelters. As recognized by the General Accounting Office, smelter emissions declined by 75 percent between 1970 and 1985.

Moreover, developments in clean coal technology are proceeding that could make meaningful and more cost-effective reductions in emissions posssible -- developments that would likely be stymied or never completed if Congress proceeds now.

In conclusion, we realize that members of this subcommittee favor acid rain legislation. We know that your support for such legislation is based on a sincere belief that the public interest will be served. We hope that you also understand that our view to the contrary is also sincerely held.

What we have sought in today's testimony is to challenge you to look at these legislative proposals from a new perspective.

Past congressional initiatives, such as the Clean Air Act, required industry to view their operations from the perspective of environmental effects and to take those effects into account in industrial decisionmaking. In doing so, the Congress rightfully corrected an imbalance in past thinking that could no longer be tolerated, if we were to pass a livable and enjoyable environment to our children.

Times, however, have changed since the Clean Air Act was passed. The Congress, the public and the environmentalists need to understand that in the more competitive world we now find ourselves, the costs of environmental programs must also be balanced in legislative and regulatory decisionmaking. For if this new imbalance in thinking is not corrected, the economic future we will leave to our children, or a goodly portion of them, will be far less bright than that which we have enjoyed.

In short, our bottom line is: there is a new economic reality in the world today; the acid rain bills fail to take it into account; and for this reason they should be rejected.

Again, thank you for this opportunity to testify.

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* Immediate Past Chairman
† Honorary

copy

February 13, 1987

The Honorable George J. Mitchell
Chairman
Subcommittee on Environmental Protection
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

Re: February 3, 1987, Subcommittee
Hearing on Acid Rain

Last week your Subcommittee held a hearing that focused on the possible public health implications of acid rain. We are concerned that this hearing, which presented only one viewpoint, could result in a serious public misperception.

The four witnesses who testified stated that the precursors of acid deposition present a significant threat to public health, particularly to children. They recommended that immediate steps be taken to reduce emissions of these precursors. This view, although uncontested at the hearing, is not the consensus of the medical profession. Equally or better qualified medical experts, not invited to testify, reject the view expressed by the hearing witnesses. In the interest of preserving the integrity of the legislative process, medical experts with opposing views should be allowed to present their opinions to the Subcommittee. For your consideration, we are enclosing a list of potential witnesses.

Last week's panel gave the Subcommittee a very narrow and unrealistic appraisal of the public health issue: According to those witnesses, any emission that produces a medically observable response should be reduced, no matter how temporary the response or how few individuals are affected. This policy is simply unreasonable in today's world. The establishment of a public health policy requires a more probing analysis.

Continued...

The reality of today dictates that the public health issue be judged from the perspective of the general welfare. In that light, further limitations on the emissions of the precursors of acid rain--particularly sulfur dioxide--cannot reasonably be justified. In this regard, we refer you to a recent statement of Dr. James H. Ware, who is an Associate Professor at the Harvard School of Public Health, one of the authors of the "Six Cities Study" relied upon by the witnesses at the February 3 hearing, and a member of EPA's Clean Air Scientific Advisory Committee (CASAC).

At CASAC's recent review of EPA's documents supporting reconsideration of existing ambient standards for sulfur dioxide, Dr. Ware cautioned against a rush to judgment on the public health issue (see enclosure). Summarizing the evidence, Dr. Ware noted:

> I find myself thinking that we're talking about health effects occurring in this relatively small percentage of exercising asthmatics under very special exposure conditions which occur extremely rarely around special kinds of point sources. [I]t seems like we may be talking about a relatively small subset of a particularly sensitive population under very special exposure conditions" (emphasis added).

Given these very limited effects, Dr. Ware expressed concern "about the unanticipated public health impact of new regulations". He recounted an article in The New York Times "about the connection between economic well-being and public health". The article concluded that "unemployment is the number one public health problem in the United States," causing "alcoholism, family dissolution, child abuse, and many other public health problems that derive from economic hardship." Dr. Ware stated that he was "concerned about diversion of public health resources into what may be a relatively low priority issue when there may be other more pressing matters for which we have a much clearer insight."

Continued...

The Honorable George J. Mitchell
February 12, 1987
Page Three

In short, the public health issue surrounding sulfur dioxide emissions is not so simple as the witnesses who appeared before you have suggested. The public debate on environmental issues, such as acid rain, can no longer reasonably be viewed in isolation. They must be addressed from the broadest possible perspective. To do otherwise will create more, and possibly greater, problems than are solved. For these reasons, we would hope that your Subcommittee will explore the acid rain issue from a broader perspective in future hearings.

Sincerely,

John A. Knebel
President

Enclosures

cc: Members of the Senate Committee on Environment and Public Works

Members of the House Committee on Energy and Commerce

POTENTIAL WITNESSES ON THE HEALTH EFFECTS OF SULFUR DIOXIDE IN AIR

E. Regis McFadden, Jr., M.D, Professor of Medicine, Case Western Reserve University, and Director of the Asthma and Allergic Disease Center, University Hospitals, Cleveland, Ohio, an expert on asthma and airway reactivity;

Ronald H. Ingram, Jr., M.D., Professor of Medicine, Harvard Medical School, and Director of the Respiratory Division, Brigham and Women's Hospital, Boston, Massachusetts, an expert on asthma and former president of the American Thoracic Society;

Donald F. Proctor, M.D., Professor Emeritus of Anesthesiology, Otolaryngology, and Environmental Health Sciences, Johns Hopkins University, Baltimore, Maryland, an expert on respiratory function and the respiratory effects of inhaled environmental agents;

Ian T. T. Higgins, M.D., Acting Chief of Epidemiology, Mahoney Institute for Health Maintenance, American Health Foundation, New York, New York, an expert on studies on the health effects of air pollutants and a former member of CASAC;

Frederick W. Lipfert, Ph.D., Brookhaven National Laboratories, Upton, New York, an evironmental consltant and analyst of air pollution epidemiological studies; and

Patrick J. Lawther, M.D., Emeritus Professor of Environmental and Preventive Medicine, St. Bartholomew's Hospital Medical Colege, London, England, a pioneer and world-renowned authority on the health effects of air pollution.

ENVIRONMENTAL DEFENSE FUND

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1987 MAR -9 PM 1:07

March 6, 1987

Senator Alan Simpson
Senate Dirksen Office Building
Washington, DC 20510

Re: Clean Air Priorities For the West.

Dear Senator Simpson:

The threat of acid rain to the West's 10,000 high country lakes dominated our air quality concerns for the West until recent events produced large reductions in regional sulfur dioxide emissions. First, after we presented testimony to the House Environment Subcommittee hearings in May which focused on the possible large increase in SO2 which would be caused by the major new smelter at Nacozari, Mexico. EPA and the State Department have negotiated an agreement with Mexico requiring installation of controls on the Nacozari smelter by early 1988. Controls are now being installed and construction is on schedule. Second, firm evidence of harm to asthmatics caused by emissions from the Phelps Dodge smelter in Douglas, Arizona, convinced EPA to require compliance with clean air law. As a result, the smelter closed under the terms of a consent decree on January 15, 1987. Finally, under pressure of a ruling from Judge Browning in an enforcement suit we filed against Magma Copper, that company is now negotiating a compliance schedule with EPA for installation of controls on its smelter in San Manuel, Arizona.

Together, final compliance at these last two uncontrolled smelters in the U.S. and the completion of emission controls at Nacozari will reduce SO2 emissions in the Rocky Mountain West by nearly 1 million tons per year, or about 55% region wide. Based on our research at EDF, we believe that this reduction should avert any major regional threat of acid rain damage to high country watersheds. It should also provide enhanced visibility in the national parks in the southwest. However, sub-regional acid rain hot spots remain.

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Recent data from high lakes in Rocky Mountain National Park show that precipitation during the summer of 1986 was the most acidic on record, despite a large reduction in copper industry emissions. This may be due to local upslope conditions that dumped more pollution from nearby Denver than would normally occur. The data require further analysis, but they suggest that sensitive watersheds close to large sources of SO2 and nitrogen oxides are not yet safe. These hot spots of concern include the Colorado Front Range, Wyoming's Wind River Range and the high Uintas downwind from Salt Lake City.

We remain concerned about the 100-150% increase in nitrogen oxide (NOx) emissions EPA projects will occur as a result of new coal-fired power plants to be built in Nevada and the Four Corners states by 1995. See EDF's testimony before the House Subcommittee on Health and the Environment, May, 1986 (enclosed). This increase will certainly increase the risk to hot spot areas and may threaten other high altitude watersheds as well.

New electrical generating technology developed by the Electric Power Research Institute offers a clear solution to this threat. Called combined cycle, coal gasification, the technology has been operating at a commercial scale facility in California since 1984. It has consistently achieved NOx emissions below 0.08 pounds of NOx per million BTU of heat input. This is nearly 90% less than would be emitted by a new coal plant under the current New Source Performance Standard. If installed at new plants in the West, this technology would virtually eliminate any significant threat of NOx pollution damage to the Western high country.

Beyond acid rain, the mobile source pollution that plagues western cities remains a very high priority. Despite the imminent arrival of the 1987 deadline for attainment of the national health standards for carbon monoxide and ozone, virtually all major cities in the region remain in violation of one or both of the standards. Major new initiatives are needed to make our urban centers livable for all Americans, including the elderly, those with lung disease, and the very young.

Unfortunately, current projections indicate that a major deterioration of urban air quality is likely within the next 10 years unless new initiatives are taken. The gains of the last decade will be wiped out in most cities unless expected trends are reversed.

I have outlined this problem as it affects Denver in a recent letter to Governor Roy Romer (enclosed). The same reversal in air quality trends is expected in all western cities, although not to the same degree as in Denver. In Phoenix and Salt Lake City, the trends may be worse than Denver (in Phoenix because vehicle miles traveled may be increasing faster, and in Salt Lake because atmospheric inversions are more severe); in other cities not as severe. But the general trend will be toward dirtier air by 1995 unless the projections are changed by new approaches reducing urban air pollution.

Promising options are available, such as a switch to coal-based clean fuels. (See letter to Governor Romer.) But in order to avoid the projected deterioration in urban air quality, these options must be pursued when Congress next addresses our clean air needs.

EDF plans to initiate a study of the clean fuel strategy we outlined in our letter to Governor Romer. We intend to evaluate its costs and potential environmental risks, as well as the urban air quality benefits it can provide. We will be pleased to share our work on this project with you as the results become available. In the meantime we urge you to give serious consideration to the need to act soon to avert a potentially severe urban air quality crisis in the 1990's.

We look forward to working with you and your staff on these issues of concern to the West during the 100th Congress.

Sincerely,

Robert E. Yuhnke

Robert E. Yuhnke
Senior Attorney

Enclosures

BEFORE THE UNITED STATES SENATE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION

THE HONORABLE GEORGE T. MITCHELL, CHAIRMAN

HEARINGS ON THE CLEAN AIR ACT

June 17, 1987

STATEMENT OF

MR. JAMES B. HERMILLER
Vice President, Refining

The Standard Oil Company
200 Public Square
Cleveland, Ohio 44114
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Statement of Mr. James B. Hermiller
Vice President, Refining
The Standard Oil Company

Mr. Chairman, I appreciate the opportunity to present the perspective of The Standard Oil Company on the diesel fuel desulfurization provisions contained in pending acid rain legislation now before the Subcommittee. In particular, my testimony will demonstrate that for environmental, economic, and technical reasons, a reduction in the sulfur content of diesel fuel should not be a part of any acid rain legislation.

Introduction

Standard Oil is the original Standard Oil Company, founded in Cleveland in 1870. The company is a major producer of domestic oil and gas, with one of the largest holdings of crude oil reserves in the United States, due largely to our interest in the Prudhoe Bay oil field on Alaska's North Slope. Standard Oil is also a leading refiner and marketer of petroleum products and has non-petroleum businesses which include chemicals, metals mining, coal and industrial products.

I. Acid Rain Legislation

In reviewing pending acid rain legislation, such as S.300 and S.321, it is our opinion that the scientific evidence does not justify enactment of such legislation at this time. While we support accelerated research into the causes and effects of acidic deposition, and the continued development of clean coal technologies, we are opposed to acid rain legislation which would require a major new program to reduce sulfur dioxide and nitrogen oxide emissions.

As results from the National Acid Precipitation Assessment Program (NAPAP) and other research efforts become available, it is encouraging to note that the environmental impacts from acidic deposition are much less than had been predicted. This evidence lead EPA Administrator Lee Thomas to state before this Subcommittee in his testimony on April 22, 1987 (page 16):

> "I see no compelling need for any near-term amendments to the Clean Air Act to require acid rain controls, given our current lack of understanding of either the quantitative nature of the problem or the quantitative benefits of any particular acid rain proposal, and given the research results we expect to see in the next one or two years."

Standard Oil agrees with EPA's assessment of the current state of knowledge and urges Congress not to enact acid rain control legislation at this time.

II. Diesel Fuel Sulfur Restrictions

One aspect of the pending acid rain legislation which is of concern to Standard Oil is the requirement to further lower the sulfur content of diesel fuel. Section 3(h) of Senator Stafford's New Clean Air Act (S.300) would require that motor vehicle diesel fuel sold after January 1, 1990 contain no more than 0.05% sulfur by weight and Section 203 of the bill recently introduced by Senator Mitchell (S.1351) would require diesel fuel to contain no more than 0.05% sulfur by weight after July 1, 1988.

The restrictions on diesel fuel sulfur levels in pending acid rain legislation should be deleted for the following four reasons:

1. The proposed requirements would have virtually no positive impact on reducing acidic deposition;
2. EPA already has the authority to require such sulfur reductions if necessary to control diesel particulate emissions;
3. Significant new costs would be added to the consumer price of diesel fuel; and
4. The restrictions cannot be accomplished within the timeframes proposed.

I will elaborate on each of these points after briefly discussing present diesel fuel sulfur levels.

A. Background - Present Diesel Fuel Sulfur Levels

Sulfur is a naturally-occurring component of crude oil, present in amounts varying from less than one-half of one percent to over three precent, depending on the formation from which the oil is extracted. The petroleum refining process results in the capture, on average, of over half of the sulfur contained in the crude oil[1], and diesel fuel has around 70% less sulfur than the average crude oil processed in U.S. refineries[2].

The average sulfur content of diesel fuel sold in the United States in 1986 was 0.26% by weight, according to the National Institute for Petroleum and

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[1] Approximate U.S. refining sulfur production is 9,700 metric tons/day (Oil & Gas Journal, Sept. 16, 1985); 0.94% sulfur in crude, sulfur input to U.S. refineries is approximately 19,200 mt/day.

[2] Oil & Gas Journal, March 30, 1987, p. 59.

Energy Research. While diesel fuel sulfur levels are not presently subject to Federal regulation, an industry consensus specification for diesel fuel (D975), established by the American Society for Testing and Materials, limits the diesel fuel sulfur level to 0.5% by weight. The purpose of this specification is to limit diesel fuel sulfur levels to ensure engine durability and fuel stability.

Table I shows total U.S. diesel fuel demand by usage category based on 1984 data.

B. Further Reduction of Diesel Fuel Sulfur Levels Is Not Warranted

1. Diesel Fuel Sulfur Emissions Have An Insignificant Impact On Acidic Deposition

Based on the 1980 NAPAP inventory, less than 300,000 tons of SO_2 annually came from diesel fuel combustion from on- and off-highway vehicles (including farm and vessels), in comparison with the over 27 million tons annually from all sources[3]. Therefore, diesel fuel combustion contributed only slightly over 1% of the Nation's sulfur dioxide emissions. (See Chart I).

In terms of SO_2 emission rates, diesel fuel is also a minor source. Combustion of diesel fuel with present average sulfur levels (0.26% by weight) results in SO_2 emissions of less than 0.3 lb/million Btu, which is already much less than the rate allowed for stationary sources in proposed acid rain legislation[4]. Mandating a 0.05% diesel fuel sulfur level would widen this disparity even further. (See Chart II).

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[3] Effect of Motor Vehicle Diesel Emissions on Acidic Emissions. TRC Environmental Consultants, 1987, p. 1 (attached).

As an attachment to my testimony, I am submitting for the record, a report prepared for Standard Oil by TRC Environmental Consultants, Inc.* which examined in detail the effect of motor vehicle diesel fuel sulfur emissions on acidic deposition. This analysis shows that further restrictions on diesel fuel sulfur levels will have little, if any, impact on acidic deposition at sensitive receptor areas. The diesel usage categories studied included on-and off-highway vehicles, farm, and vessels, which account for over 70% of total diesel emissions in the United States. (See Table I.) While diesel fuel combustion from the sources studied contributed only about 1% of the Nation's annual sulfur dioxide emissions, they contribute much less - only 0.27% - of the sulfate deposition at the Adirondack Mountains in New York. In other words, the great majority of sulfate deposition in the Adirondacks comes from sources other than motor vehicle diesel fuel combustion. (See Chart I).

The TRC report also found that the percent reduction in sulfate deposition in the Adirondacks that would result from lowering diesel fuel sulfur levels to 0.05% by weight in the state of New York would be only 0.040%.

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[4] Section 2 of S.321 (Mitchell) would limit stationary source emissions to 0.9 lbs of SO_2 per million Btu of heat input.

*The report referred to has been retained in committee files.

The reasons for the very small effect of diesel fuel sulfur emissions on sulfate deposition in sensitive receptor areas includes the fact that much of the fuel is combusted in distant areas and motor vehicle diesel emissions originate near ground level.

The TRC study concludes (page iv):

> "Motor vehicle diesel fuel is an extremely minor contributor to sulfate deposition. Reducing the sulfur content of diesel fuel, consequently, will have an insignificant impact on acidic deposition."

2. Legislation In This Area Would Duplicate EPA's Present Authority

It has been suggested that diesel fuel sulfur levels need to be further lowered to reduce particulate emissions from heavy duty diesel trucks and buses in order to meet EPA's emission standards[5]. However, it has not been shown that lower sulfur diesel fuel levels are needed to meet the EPA standards. In fact, a 50% reduction in diesel fuel sulfur levels will result in less than a 12% reduction in engine-out particulate emissions[6].

Also, in promulgating the standards for engine particulate emissions in 1985, EPA did not determine that a reduction in diesel fuel sulfur was needed to meet the standard. We understand that EPA is continuing to assess the capability of heavy duty engines to meet their 1991 and 1994 standards and whether there is a need for a reduction in sulfur content of diesel fuel below current levels.

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[5] 50 Federal Register 10627; March 15, 1985.

[6] Heavy-Duty Diesel Engine/Fuels Combustion Performance Emissions - A Cooperative Program, Society of Automotive Engineers Paper No. 852978.

Under Section 211(C)(1)(B) of the Clean Air Act, the EPA Administrator can

> "...prohibit the manufacture, introduction into commerce, offering for sale, or sale of any fuel additive for use in a motor vehicle or motor vehicle engine...if emission products of such fuel or fuel additive will impair to a significant degree the performance of any emission control device or system which is in general use or which the Administrator finds has been developed to a point where in a reasonable time it would be in general use were such regulations to be promulgated."

Therefore, EPA has the authority under Section 211 of the Clean Air Act to adopt a diesel fuel sulfur limit _if_ it is found to be needed.

It is generally conceded that an emission control device called a trap-oxidizer will be required for heavy-duty engines to comply with the 1994 standard for particulate matter. If a further reduction in diesel fuel sulfur content below present levels is shown to be necessary to ensure the proper operation of the trap oxidizer, Section 211 of the Clean Air Act provides such authority. Since EPA can regulate the quality of the fuel to facilitate the operation of the emission control system, the diesel desulfurization provision in the pending acid rain legislation is therefore duplicative of EPA's present authority and should be deleted.

3. _The High Costs of Further Diesel Fuel Desulfurization_

Besides being a relatively minor source of sulfur dioxide emissions, the cost of further diesel fuel desulfurization is very high on the U.S.

refining industry and the consumer. According to the American Petroleum Institute, to meet the lower sulfur levels called for in the proposed acid rain legislation (0.05%) would likely require over $3 billion in capital investment for U.S. refiners and another $1.2 billion/year in operating costs. This could raise the cost for diesel fuel as much as 8 cents per gallon. In terms of SO_2 control costs this translates to over $3,200 per ton of sulfur dioxide removed - much higher than other types of SO_2 controls.

For the average independent trucker, operating cost increases would be over $1,000 per year, and increased operating costs for U.S. farmers would be over $160 million per year according to the American Farm Bureau Federation.

Since the technology for removing sulfur from petroleum products is well known and available, the question is whether the accompanying environmental benefits of further diesel fuel desulfurization justify its cost on the consumer. In view of these economic impacts in relation to the de minimis acid deposition benefits noted previously, the Standard Oil Company fails to believe these costs are justified.

We estimate that compliance with the 0.05% sulfur limit would cost the Standard Oil Company up to $150 million in capital investments. This could occur at the same time we, and other members of the oil industry, are faced with costly new requirements for hazardous waste handling, possible restrictions on gasoline volatility, and other environmental controls. We urge Congress to assess environmental costs in their entirety and not to require new expenditures for diesel oil desulfurization where acid rain environmental benefits are not evident.

4. The Proposed Legislation Would Allow Insufficient Time To Reduce Diesel Fuel Sulfur Levels

As noted previously, pending legislation would require U.S. refiners to meet stringent low sulfur diesel fuel specifications as early as July 1, 1988. This date would not allow sufficient time for the design, permitting and construction of the desulfurization facilities needed to meet such a specification. In order to produce low sulfur diesel fuel, U.S. refineries would have to install not only hydrotreating units, but also would have to construct additional hydrogen production capacity and new sulfur plant capacity. The detailed design of such units would likely take over a year, followed by another year to obtain needed environmental permits. Finally, construction and startup would probably take another two years, for a total of nearly four years. While parts of this schedule could be accelerated, other parts - such as permitting - are out of our control. Any expedited schedule would also add to the total costs as a consequence of overtime charges, rush orders, etc., which carry a cost premium.

Summary

Standard Oil concurs with EPA Administrator Lee Thomas that the current lack of understanding regarding the nature of the acid rain problem and appropriate solutions create no compelling need for acid rain control legislation at this time. While we support accelerated research into the causes and effects of acidic deposition and the continued development of clean coal technologies, we are opposed to acid rain legislation which would require a major new program to reduce sulfur dioxide and nitrogen oxide emissions.

Current diesel fuel combustion contributes a very small portion of national SO_2 emissions and would have an insignificant impact on reducing acidic deposition in sensitive receptor areas. In addition, a diesel desulfurization provision in any acid rain legislation would duplicate EPA's existing Clean Air Act authority. Furthermore, reducing diesel fuel sulfur levels below present levels would be prohibitively expensive for the oil industry and consumers with little, if any, environmental benefits. And lastly, the deadlines in the proposed legislation provide insufficient time to meet the mandated diesel fuel desulfurization level.

In view of the above, it is the position of The Standard Oil Company that acid rain legislation is not warranted at this time and that a diesel fuel desulfurization requirement is particularly inappropriate in any such legislation.

TABLE I

TOTAL U.S. DIESEL DEMAND BY CATEGORIES

1984 Data

Usage Categories	Usage Volume (Thousand Barrels Per Day)	Usage Volume (Percent of Total)
On Highway	1,086	52.6
Railroad	223	10.8
Vessel Bunker	111	5.4
Military	28	1.4
Off Highway	111	5.4
Farm	195	9.5
Oil Company Usage	56	2.7
Commercial and Industrial	251	12.2
TOTAL	2,061	100.0

Source: July, 1985 Petroleum Marketing Monthly

CHART I

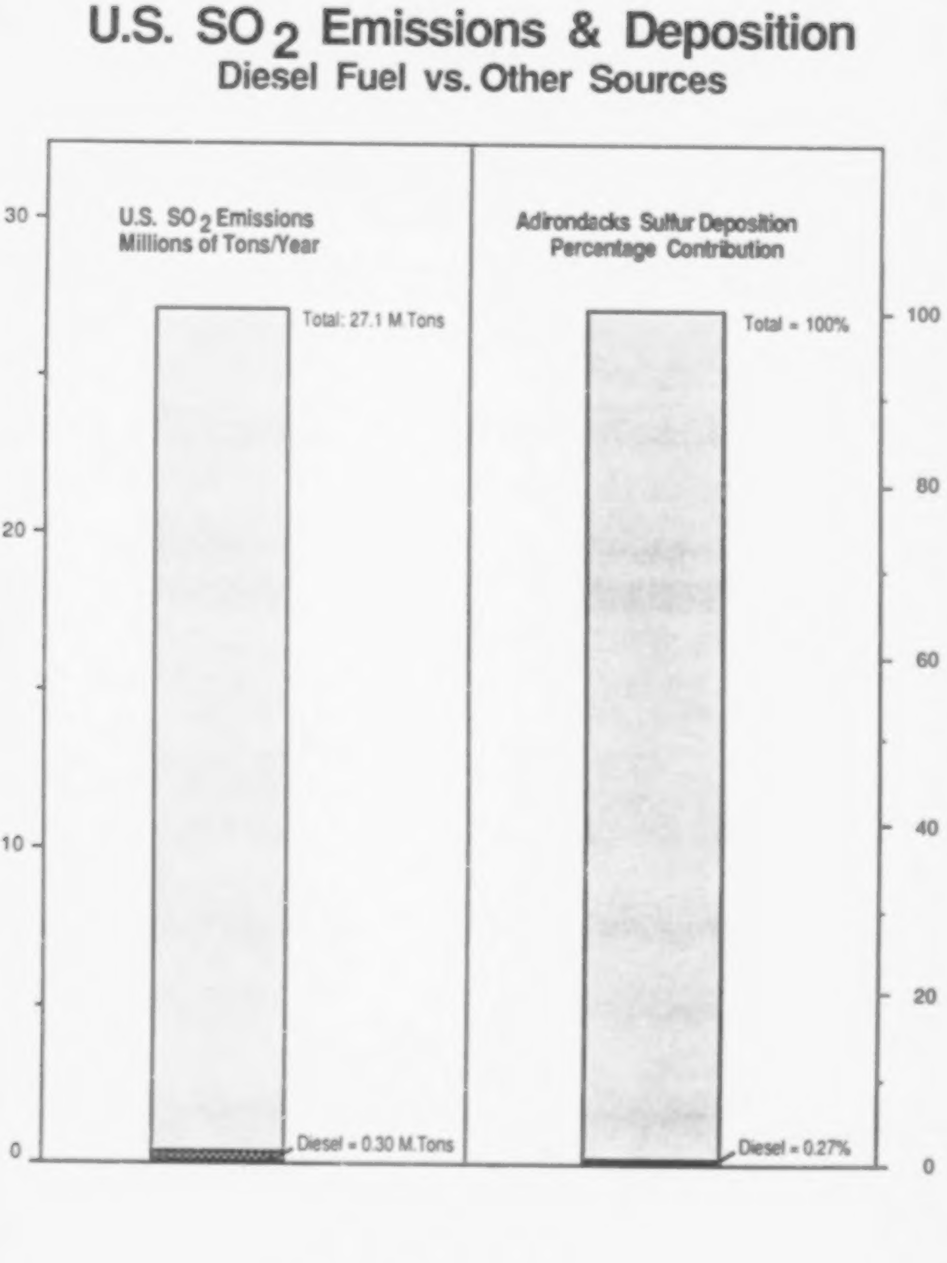
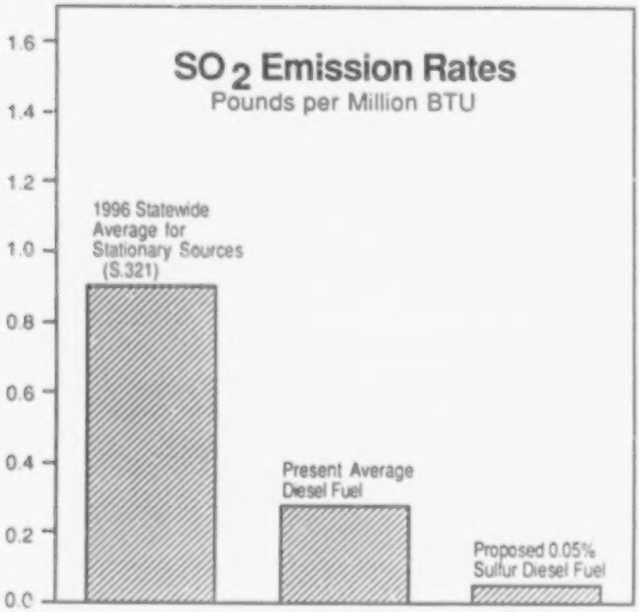

U.S. SO2 Emissions & Deposition
Diesel Fuel vs. Other Sources
U.S. SO2 Emissions
Millions of Tons/Year
Total: 27.1 M Tons
Diesel = 0.30 M.Tons
Adirondacks Sulfur Deposition
Percentage Contribution
Total = 100%
Diesel = 0.27%
30
20
10
0
100
80
60
40
20
0

CHART II

Comparison of Proposed Stationary and Diesel Fuel SO_2 Emission Rates.



cibo
COUNCIL OF INDUSTRIAL BOILER OWNERS

STATEMENT OF

LAUREN W. LAABS
MANAGER, ENVIRONMENTAL AFFAIRS
A. E. STALEY MANUFACTURING COMPANY

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

June 17, 1987

5817 Burke Centre Parkway, Burke, Virginia 22015 • (703) 250-9042

STATEMENT OF LAUREN W. LAABS
ON BEHALF OF THE COUNCIL OF INDUSTRIAL BOILER OWNERS

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

June 17, 1987

I am Lauren W. Laabs, Manager, Environmental Affairs, A. E. Staley Manufacturing Company, speaking today on behalf of the Council of Industrial Boiler Owners ("CIBO"). I appreciate this opportunity to present CIBO's views on the acid rain control proposals including S.95 (Kerry), S.300 (Stafford), S.316 (Proxmire), S.321 (Mitchell).

CIBO is a broad based association of industrial boiler operators and related equipment manufacturers, with 50 members representing 19 major industrial sectors. CIBO was formed in 1978 to promote the maximum exchange of information between industry and government relating to energy and environmental policies, laws and regulations affecting industrial boilers. CIBO has a long-standing interest in the development of reasonable, cost-effective regulations of industrial boiler air emissions.

I. INTRODUCTION

Because additional legislated emission control measures will have a major financial impact on its members, and, in fact, on most U.S. manufacturers, CIBO has participated in the acid rain debate for several years. During that same period we also cooperated extensively with the National Acid Precipitation Assessment Program, principally working the areas of control technologies and man-made sources.

CIBO believes that the present vigorous program of investigation should be continued, ascertaining the root causes of acid deposition, at the same time closely monitoring development of the many emerging control technologies, which could be deployed on a cost-effective basis when the need for further control is clearly demonstrated. Additional legislative control measures should be held in abeyance until these programs more clearly define the direction our country should be taking.

II. WHAT IS THE PRESENT NEED?

Nationwide emissions of SO_2 have dramatically declined over the last decade and are likely to continue to decline under existing law.

Several studies have noted the decline of SO_2 emissions from industrial sources. For example, the *Joint Report of the Special Envoys on Acid Rain* (January 1986) by Drew Lewis of the United States and William Davis of Canada, states that such emissions were down 46% from 1973 to 1983. The steady decline in SO_2 emissions is further confirmed by EPA in its "National Air Pollutant Emission Estimates, 1940-1983" (December 1984), which states that SO_2 emissions from industrial source fuel combustion declined from 4.5 million tons in 1970 to less than 2.3 million tons in 1983, a reduction of 49%.

The causes of this downward trend are several. First, due in large part to dramatic energy conservation measures undertaken by industry in the last decade, total industrial energy consumption has actually declined by 7.5% from 1972 to 1984, according to the Energy Information Administration. With this improved energy efficiency, many companies no longer need to expand their industrial steam generating base. Accordingly, approximately 80% of new industrial boiler installations serve to *replace older, dirtier, less efficient units. The boiler replacement process, by itself, is resulting in significant SO_2 emission reductions.*

In addition, industry is using lower sulfur fossil fuels and increasing its use of self-generated wastes as fuels. Data from the American Boiler Manufacturers Association, for example, shows that on an aggregate input basis, 44% of all industrial boilers sold in the period 1984-85 were designed to burn waste fuels or to utilize waste heat. In a majority of cases, these new units will burn fuels of very low sulfur content and produce low NOx emissions. Moreover, new low polluting solid fuel combustion technologies are being installed by industry at a rapid rate. Finally, various provisions of the Clean Air Act are working to limit SO_2 and NOx emissions. For example, New Source Performance Standards (NSPS) issued under Section 111 of the Act governing SO_2 and NOx emissions from new utility and industrial boilers greater than 250 MMBtu/hr. heat input have been in place since 1971. These standards, which were revised for utility boilers in 1977, will continue to have a positive impact into the future.

III. INDUSTRY'S COMPETITIVENESS AND THE COST OF ADDITIONAL CONTROL

CIBO believes that the foregoing rationale is even more compelling in view of today's international marketplace and the need for U.S. industry to enhance its competitive posture in this hot-house world market. In this vein we would like to examine the direct control compliance costs for industrial boiler owners to meet the requirements of the various bills now before the Subcommittee.

IV. DIRECT INDUSTRIAL BOILER CONTROL COSTS - SO_2

Of particular concern to CIBO is the fact that although SO_2 emissions from industrial boilers constitute only about 10% of the total from all stationary sources, the legislative proposals for a limit of 1.2 lbs/MMBtu would impose exorbitant costs on these relatively small sources of nearly 1.5 billion dollars per year! Legislative proposals which would restrict emissions to 0.9 lbs/MMBtu would escalate these costs to almost $2.0 billion per year. The four bills currently under consideration call for SO_2 emission limitations ranging from 0.9lbs/MMBtu to 1.5lbs/MMBtu. Using the median 1.2 lbs. criterion, we have calculated state-by-state and national costs.

Three control methods - fuel switching, limestone injection with multi-stage burner, (LIMB) and flue gas desulfurization (FGD) - were analyzed, depending upon the percent reduction required in each state. The results for the ten states expected to incur the greatest cost are summarized below:

Industrial Boiler Emission Controls
Annual Costs for 10 Leading States
(1.2 lbs/MMBtu)

	State	Tons Removed ($X10^3$)	Annualized Cost (Millions$)	Cost/ Ton Removed
1.	OH	266.0	421.3	1584
2.	WI	82.5	130.4	1580
3.	IN	68.4	101.7	1488
4.	AL	52.4	77.5	1490
5.	ME	47.4	75.5	1592
6.	IA	37.5	59.6	1588
7.	VA	51.6	57.8	1120
8.	NC	48.1	55.0	1144
9.	MI	52.5	53.3	1016
10.	FL	39.8	47.9	1204
Totals:		746.2	$1080	$1447
	National			
Totals:		1,156.0	$1461	$1263

Furthermore, industrial boilers in these ten states will have to remove 65% of the industrial boiler SO_2 emissions and absorb 74% of the national cost of this removal at a dollar/ton 15% above the national average. These are substantial inequities by any measure.

V. DIRECT INDUSTRIAL BOILER CONTROL - NOx

These costs are much more difficult to determine since industrial experience, even with the systems closest to commercialization, is very limited, and with the systems required by the Stafford Bill, non-existent.

Using data of the Electric Power Research Institute and the National Acid Precipitation Assessment Program, however, we estimate the cost of NOx removal using the former, i.e. low NOx burners, at $100-200 per ton removed, whereas with the latter, i.e., selective catalytic reduction, (SCR), the costs will range between $1400 and 3000 per ton removed for the larger utility systems; industrial boiler control costs will be even higher because the mean size of industrial boilers is only about 1/30 that of the utilities and thus industrials do not enjoy the same economy of scale.

To put this into perspective from the viewpoint of coal-burning industrial, the fuel cost increase will be as follows:

	Delivered Coal Cost, $/Ton	Additional Cost, $/Ton	Total Cost, $/Ton
Low NOx Burner	35.60	2 - 3	38 - 39
SCR	35.60	75	111

VI. CONCLUSION

Without even considering the scientific uncertanties regarding the relative causes of acid deposition, CIBO believes that further development of more advanced, cost-effective SO_2 and NOx control technologies must be carried out before additional control measures are imposed. This is especially true given the current state of rapidly evolving SO_2 and NOx emission control systems, and our conviction that time will allow commercial demonstration of processes and their development on a more rational phased timetable, with consequent less damage to the competitiveness of U.S. basic industry.

It has been our role to bring direct industrial boiler emission compliance costs to the Committee's attention. We would point out, however, that these are in addition to the costs U.S. manufacturing will bear because of increased electricity costs, which in the aggregate may well exceed the costs we have just enumerated.

We thank the Subcommittee for the opportunity to present our views on this important issue.

Testimony

Presented by

Peter Aylen

on behalf of the

Aluminum Association, Inc.

June 17, 1987

before the

Subcommittee on Environmental Protection

Committee on Environmental Public Works

United States Senate

Mr. Chairman and members of the committee:

My name is Peter Aylen, Vice President, Alumax Primary Aluminum Corporation. I am here today to testify on behalf of the Aluminum Association, Inc., whose membership represents most of the United States producers of primary aluminum ingot. Association members also account for eighty-five percent of the shipments of aluminum mill products in this country.

The Aluminum Industry Position on Acid Rain Legislation

We in the aluminum industry are deeply concerned over the potential impacts of proposed acid rain legislation under consideration by the Committee and are opposed to their enactment.

We recognize that acid rain is an important environmental question. But for the aluminum industry, the proposed acid rain legislation is also a serious economic and energy issue -- with the potential of inflicting severe damage on the United States' aluminum production capacity.

The bills before you would place an unfair competitive burden on the U.S. primary aluminum industry. The market for aluminum is worldwide and its price is set on several commodities exchanges.

* We urge this Committee to recognize that decisions on acid rain are, at the same time, decisions about energy costs and economic impacts which require serious consideration.

* We urge you to consider the vulnerability of the U.S. aluminum industry to competition, even in our home market, from foreign producers advantaged by lower electricity costs and sometimes by government subsidy or support.

* We believe that Congress must address national policies concerning electricity generation, ratemaking, and the appropriate distribution of pollution control costs.

* In particular, we urge this Committee, in considering acid rain legislation, to seek an approach that does not concentrate the burdens unfairly on selected areas of the country; does not penalize major industrial users of electricity, such as the aluminum industry; and does not jeopardize the continued survival of significant portions of the nation's vital domestic aluminum production industry.

Statement of the Issue

Acid rain has been debated for some time now as an essentially environmental issue. The questions in this debate have focussed on scientific assessments and corrective methods. To the aluminum industry, however, acid rain legislation which seeks to impose costly corrective actions on electric utilities is much more than an environmental issue. It is an electricity cost issue which holds the key to survival or failure for a large portion of the remaining U.S. aluminum industry.

Aluminum reduction does not cause acid rain. But it does rely, unavoidably, on electricity to energize its basic process; technologically, there is no practical alternative. When electricity rates rise, aluminum producers have only two choices: pay the higher price or shut down production.

Our industry has already suffered plant shutdowns because national and state ratemaking policies in this country have forced electricity costs to artificially high levels compared with the rest of the world.

The pending proposals would push electricity costs even higher. The result might well be the increased vulnerability of a number of the remaining U.S. aluminum reduction plants. Up to half of those currently in operation will be directly affected.

Please bear in mind that acid rain is not just a North American question; western Europe faces a similar debate. But we cannot count on foreign nations to adopt the same protective measures as the United States. Many foreign countries will not adopt similar acid rain provisions, and so will spare their own electric utilities -- and aluminum smelters -- the added costs which U.S. utilities and aluminum producers would have to shoulder.

Western Europe may not match U.S. action. Instead, European governments may see U.S. acid rain legislation as a chance for them to gain competitive advantage, either by settling for less costly measures or by compensating their own aluminum industries through some form of subsidization.

In the acid rain issue, the aluminum industry is as much an innocent bystander as any other industry, business or private household that uses and depends on electricity. But we are far more economically vulnerable than most to electricity price increases. Adoption of these bills would jepardize a major portion of the U.S. aluminum industry and its ability to compete. The burden of paying for the solution to a widespread problem would press narrowly and painfully on our industry and on the states and communities where it is concentrated.

Jobs, taxes and foreign trade would be lost, and the national and local economies would suffer.

The Aluminum Industry's Vulnerability to Electricity Cost Increases

The Hall-Heroult electrolytic reduction process which separates aluminum metal from its ore was invented just over a century ago. It lowered the cost of aluminum by more than 95 percent, changing it for the first time from a semi-precious material almost as costly as silver into an abundant, useful metal inexpensive enough for pots and pans.

This aluminum smelting process requires electricity in large amounts; in fact, it was made practical only by the invention of efficient electric generators. It is not simply a matter of generating heat, as in many other metal smelting or industrial processes. Aluminum production cannot switch to some other type of energy. Electricity is an essential part of the process; there is no known practical alternative.

Energy -- mainly this electricity for smelting -- accounts for about one-third of the total cost of aluminum production.

The U.S. Commerce Department's International Trade Administration underscored the importance of this factor, in these words:

"The aluminum industry is highly energy intensive. The differential in world power costs is the most important determining factor in selecting the site for a new primary aluminum smelter and, during recession, is the most important determining factor for maintaining or discontinuing operations at one smelter relative to another."

That passage is drawn from a report entitled "Energy and the Primary Aluminum Industry", issued by the ITA in 1985.

In the early 1970s, electricity costs in the United States were in the lowest quartile worldwide. Within ten years, they had risen into the highest quartile of costs worldwide.

It is true that all energy costs increased globally as a result of the sharp increase in oil prices imposed by OPEC during that decade; but that does not account for the fact that electricity costs in the United States rose substantially higher than the world average. There was no shortage of economical powerplant fuel in this country: the United States has enormous reserves of coal.

Without going too deeply into a very complex subject, let me just say that the higher U.S. electricity costs were brought about largely by national and state regulatory policies governing powerplant capital investment and cost recapture.

The cost of electricity to producers of aluminum in the United States now averages about 2.3 cents per kilowatt hour, while the average cost to foreign producers is only about 1.6 to 1.8 cents per kilowatt hour; the electricity cost to foreign producers can reach as low as 0.5 cent per kilowatt hour, as in Canada and Venezuela.

Considering typical electricity consumption in aluminum smelting, this means that the electricity to produce one pound of aluminum costs about 18 cents in the United States -- 7.5 times what it cost as recently as 1979. And against that 18 cent cost in this country, the electricity cost to produce a pound of aluminum averages only about 13 cents abroad, a 28 percent advantage to our foreign competitors.

A glance at aluminum prices on the London metal exchange will be enough to show you how large that electricity cost difference is, as a fraction of the market price of aluminum.

I mention the metal exchange to make another point as well: aluminum ingot is a commodity, bought and sold in an open international market.

U.S. aluminum producers, competing on price with the rest of the world, cannot pass increased costs along to their customers. The customers will simply find other suppliers, at the market price.

In addition, an estimated 40 percent of foreign aluminum smelting plants are owned or controlled by foreign governments which often subsidize them, or manage them for such national policy purposes as sustaining employment or gaining foreign currency. These plants, operating on such agendas, present an unfair competition which further undermines the market position of U.S. companies which must bear their own costs without subsidy.

None of these factors lies within the control of the U.S. aluminum industry.

The U.S. industry has made vigorous efforts to improve its efficiency and reduce its production costs, with considerable success. Responding to the U.S. government's energy conservation campaign, the aluminum industry pledged energy efficiency improvements reaching 20 percent by 1985, compared with 1972; it surpassed that goal three years early. As we move closer to maximum theoretical efficiency, however, we are running out of ways to cut electricity use much further.

In addition, several electric power suppliers, most notably Bonneville Power Administration, as well as, utiliites in Missouri and South Carolina, after difficult negotiations, have provided some relief to aluminum producters in the form of moderated electricity rates.

Despite our major improvements in energy efficiency and some rate relief, the U.S. aluminum industry remains burdened with the 28 percent electricity cost disadvantage that I described earlier.

In these circumstances, any further cost increase threatens the continued competitive viability of an aluminum plant trying to operate in the United States. This is not a rhetorical statement, I assure you. When the Association testified before this committee in 1984, the United States had 32 primary aluminum plants. Today, just three years later, only 21 of them are still in operation; the others are shut down.

Potential Impacts of Acid Rain Legislation on the Aluminum Industry

The acid rain legislation under consideration would certainly increase the capital and operating costs of producing electricity at coal-fired powerplants, and those costs would impact aluminum smelters dependent on that electricity.

The Congressional Research Service recently estimated the electricity rate increases which would result from passage of S. 316 or S. 300, based on information prepared last year by ICF Incorporated. The CRS update as it appeared in the Congressional Record last March 6, pointed out that aluminum and chlorine/caustics are the two industries which would be hardest hit by rate increases.

And let me quote this further comment:

"In both cases, the industries are engaged in international competition, particularly the aluminum industry. In 1986" -- still quoting the CRS report -- "the price of aluminum on the international market was about 50 cents a pound, compared with a rough average cost of 60-to-65 cents a pound for the two smelters in Kentucky."

The author there was citing Kentucky as only one comparison example; the study recognized cost impacts in various states with aluminum smelters. And for us, the bottom line lies in this report's estimate of the electricity rate increases threatened by these acid rain bills, as a proportion of the price of our product. The CRS estimated that the projected electricity rate increases to aluminum smelting plants could range from 2.5 to as much as 17.5 percent of the price of aluminum!

Our own industry surveys project similar rate increases from this legislation. Studies by the Congressional Budget Office, the Office of Technology Assessment, Management Information Services, Inc. (a private research organization), and Edison Electric Institute (which represents investor-owned utilities) all project serious cost impacts from acid raid legislation.

There is already an urgent need to adjust existing electricity rates, for the health of the aluminum industry. Some recognition of this fact is beginning to sink in. However, the moderate rate relief won from electric utilities in Missouri and South Carolina, will be cancelled by the effects of pending acid rain proposales and the cost-price squeeze on our industry will be even greater than before.

That is why we urge this Committee so strongly to consider the full implications and impacts of the proposed legislation -- to look beyond its environmental intentions at the economic havoc it might cause.

When you take an industry already fighting for survival, with an existing artificial cost handicap on its back, and add another 10 percent or 12.5 percent, or 13.8 percent, or 17.5 percent to its product costs -- and all of those numbers are applied to aluminum smelters in the CRS projections -- you do, in reality, raise serious questions about its ability to continue to operate in this country.

Environment is your specific mandate; but this particular environmental issue has dragged some very unattractive economic impacts home with it and placed them on your doorstep.

Of the 21 primary aluminum plants still operating in the United States, we have identified eleven plants -- half of our remaining industry -- that could be adversely impacted by the proposed acid rain legislation. I am providing that list to the Committee for your convenience. (Attachment 1)

Based on a survey by affected aluminum companies it was estimated that acid rain legislation requiring a 10 million ton reduction in sulfur dioxide emissions considered last year would have increased production costs by 12 to 15 percent at these eleven plants, which depend on coal-fired electrical generation. Kaiser Aluminum estimated that the cost of production would increase about 15 percent at its Ravenswood, West Virginia, plant.

Based on an SO_2 reduction of 12 million tons in the pending bill, we believe that plants would experience electricity cost increases of between 12 and 28 percent. (A more detailed analysis is contained in Attachment 2.)

Potential Economic Impacts

When an aluminum plant shuts down, local or regional economies are hurt severely. Aluminum smelters are major local employers. Jobs and tax revenues are lost; and, ironically the electric utility itself may suddenly be thrown into financial trouble by the loss of one of its major customers.

Loss of aluminum compaines as customers will require residential and commercial users to provide the lost revenues for affected utilities. Rate increases to these customer classes could be in excess of 20 percent. For example, two large aluminum plants closed not long ago in Arkansas, but the utility still must continue to recover its fixed costs. As a result, the remaining ratepayers of Arkansas Power and Light System were faced with the probability of a 20 percent rate hike.

The ITA report that I cited earlier pointed out, and I quote: "The loss of even a small portion of the aluminum industry can have a severe regional economic impact in addition to its negative implications for the nation in general."

That report estimated what would happen in western Kentucky if the Sebree and Hawesville aluminum reduction plants were to shut down. It found that a total of more than 4,200 aluminum industry and related jobs would be lost and, with them, $102 million in payroll. Sebree and Hawesville are among the eleven plants clearly jeopardized by the acid rain legislation now under consideration.

Perhaps I can best explain this by talking about an Alumax plant. The Eastalco smelter, located just up I-270 in Frederick, Maryland. I have been associated with Eastalco for many years. Eastalco is similar to the industry as a whole in seeing its costs rise, particularly electricity. It is one of the few remaining major industrial employers in Western Maryland -- and it provides some 770 well-paying jobs. It is estimated that 1200 indirect jobs and $144 million in economic benefits are generated in the community. Eastalco is the largest industrial customer of its utility, Potomac Edison. We purchase about $73 million in power per year at full capacity, consuming about 21% of P.E.'s output.

But Eastalco is a plant on the edge. Primarily this is because at 28 mills, Eastalco pays the highest electricity rates for any aluminum smelter in the U.S. To remain competitive, virtually every cost factor within the reach of management or labor has been reduced to the minimum. We renegotiated the costs for raw materials, natural gas and transportation. We reduced the ranks of management. Last year at labor contract time, we asked our union emloyees to help us reduce our overall labor costs. We explained that times had changed, and to regain competitiveness, every aspect of the plant must improve. Though it was difficult, we finally agreed on ways to reduce the cost and improve the productivity of our work force.

The loss of a smelter also causes a ripple effect in downstream aluminum fabricating operations. In most instances, molten metal from a smelter is transported directly to an adjacent rolling mill or other fabricating plant where the aluminum is alloyed and cast into rolling ingot, rod or billet for further fabrication. Substantial efficiencies are achieved in utilizing this hot metal. If U.S. smelters are closed and production is shifted to foreign countries, it is only a matter of time until major portions of the U.S. aluminum fabricating facilities will also move. This significantly compounds the economic impact of the smelter loss.

It is important to recognize that damage to the U.S. aluminum industry also damages the nation's economy, its balance of trade, and its security preparedness.

Aluminum is classified by the federal government as a strategic material, vital in aircraft, spacecraft and rockets, in other military equipment, and in the nation's economic infrastructure.

Summarizing a 1986 report by the U.S. National Materials Advisory Board, its chairman Nickolas J. Themelis wrote:

"A strong domestic industrial base, such as steel, copper and aluminum, is essential to preparedness for a national emergency. Therefore, steps ensuring the existence of these competitive industries must be integral parts of any national preparedness policy."

Conclusion

In conclusion, my thanks to the Committee for allowing me to present the testimony of the aluminum industry. I hope we have conveyed to you the urgency which we place upon this issue. We are asking you to focus on the serious problems posed for the aluminum industry by acid rain legislation.

We are a major U.S. industry, fighting to survive in a highly competitive world market. For many of our plants that effort would be seriously hampered by enactment of acid rain legislation that fails to address the electricity policy and cost questions we have raised. We urge the Committee to respond to the full range of impacts of this legislation as you consider the acid rain issue. The future of a significant part of the U.S. primary aluminum industry may be at stake.

Thank you.

AUTOMOTIVE SERVICE INDUSTRY ASSOCIATION
444 North Michigan Avenue, Chicago, Illinois 60611 (312) 836-1300

THE INDUSTRY'S ONLY FULL SERVICE ASSOCIATION

REPLY TO
WASHINGTON, D.C. OFFICE
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202-223-5300
RICHARD F. TURNEY
WASHINGTON REPRESENTATIVE
VIRGINIA B. BLISS
ASSOCIATE WASHINGTON REPRESENTATIVE

June 15, 1987

The Honorable George Mitchell
Chairman
Senate Subcommittee on Environment
and Public Works
U.S. Senate
SD-458
Washington, D.C. 20510

Dear Mr. Chairman:

On June 5, 1987 we forwarded the statement of John Nerlinger, President of the Automotive Service Industry Association on S. 300, S. 321, and S. 1123. We requested that the statement be made a part of the hearing record on your upcoming hearings on Clean Air Act revisions.

June 10, you introduced S. 1351, which also contains provisions in Section 202 that contain the identical ramifications discussed in President Nerlinger's statement on the three other bills, i.e. an increase in the Section 202 (d) length of the Clean Air Act warranties from 5 years/50,000 miles, to 10 years/100,000 miles.

We respectfully urge that President Nerlinger's statement also be considered as applying to those provisions of S. 1351 that deal with the anticompetitive and anticonsumer extension of the warranties contained in the Act.

We appreciate your consideration of the aftermarket industry's comments regarding the catastrophic impact of such proposals and respectfully request this letter be made part of your hearing record as well.

Sincerely,

Richard F. Turney

Richard F. Turney

Enclosure
RFT:sah
cc: Senators Daniel Moynihan
Max Baucus
Frank Lautenberg
John Breaux
Bob Graham
John Chafee
Robert Stafford
Alan Simpson
David Durenberger
Larry Pressler

ASIA

THE INDUSTRY'S ONLY FULL SERVICE ASSOCIATION

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REPLY TO
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RICHARD F. TURNEY
WASHINGTON REPRESENTATIVE
VIRGINIA B. BLISS
ASSOCIATE WASHINGTON REPRESENTATIVE

June 5, 1987

Honorable George Mitchell
Chairman
Senate Subcommmittee on Environment
and Public Works
U.S. Senate
SD-458
Washington, D.C. 20510

Dear Mr. Chairman:

Enclosed is the statement of John Nerlinger, President of the Automotive Service Industry Association, which we respectfully request be made part of the hearing record on your upcoming hearings on Clean Air.

ASIA's statement specifically refers to three bills under consideration by your Committee; S. 300, S. 321, and S. 1123, all of which contain provisions dealing with the mandated Clean Air Act waranties.

We appreciate your consideration of the automotive aftermarket industry's comments regarding this serious anticompetitive and anticonsumer issue.

Sincerely,

Richard F. Turney

Richard F. Turney

Enclosure

cc: Senators Daniel Moynihan
Max Baucus
Frank Lautenberg
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June 5, 1987

STATEMENT OF JOHN W. NERLINGER
PRESIDENT, AUTOMOTIVE SERVICE INDUSTRY ASSOCIATION
TO
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION

RELATING TO THE EMISSION WARRANTY PROVISIONS OF S.300, S.321 AND S.1123

Mr. Chairman, members of the Subcommittee:

My name is John W. Nerlinger. I am president of Automotive Service Industry Association (ASIA), the organization representing the entire spectrum of the automotive aftermarket industry. The association appreciates this opportunity to present its views with respect to the emission warranty provisions of S.300, S.321 and S.1123, the Clean Air Act Revision.

The Automotive Service Industry Association (ASIA) is the automotive world's largest and most comprehensive organization. Its membership encompasses more than 8,500 independent automotive wholesalers, warehouse distributors, heavy-duty parts and equipment distributors, automotive electric service distributors, manufacturers' representatives, manufacturers and manufacturers of automotive parts, tools, equipment, chemicals, paint, refinishing materials, supplies and accessories. Members of the association are primarily small businesses engaged in manufacturing and distributing the replacement parts and accessories that are required to service and repair the millions of passenger cars and trucks in operation in the United States today.

The parts and components necessary for the repair and maintenance of these motor vehicles are primarily supplied by independent manufacturers and distributors, which are collectively known as the independent aftermarket industry. This industry, composed of over 400,000 independent businesses, the vast majority of which are small businesses, occupies a vital role in maintaining the nation's vehicles and in protecting the environment.

The independent automotive aftermarket places a high priority on such protection. Over the years, the independent aftermarket has made a significant contribution to protection of the environment by providing a convenient, efficient and low cost opportunity to make the necessary repairs and perform the necessary maintenance on the millions of motor vehicles travelling the nation's highways. The consumer has overwhelmingly chosen to use the independent aftermarket where a free choice to do so has presented itself. The result is that our air quality is better than it would be if they did not so freely exercise their choice for that efficient and convenient service.

The quality of our environment requires continuing advancements in technology. Historically, the independent aftermarket has been the dominant source of parts development and innovations. Development of new technology by the independent aftermarket is the foundation of the vast technological improvements in the vehicle itself as the vehicle manufacturing sector consistently has reached out to utilize the high degree of technical developments achieved by the independent aftermarket. Without an independent aftermarket spurred on by the relentless competitive spirit of the industry, this nation would not today enjoy the high degree of safety and performance of parts utilized for replacement. The leadership role of the independent aftermarket is manifestly evident in providing the basis for advanced technology that is translated into constantly improving parts that serve our nation's consumers and the environment in which they live.

The consumer's needs are served through a highly efficient system of distribution which gets the right parts to the right person at the right time and at the right place at a competitive and affordable price. That is the mission of the independent aftermarket. It is a mission that has served and continues to service the consumer very well. Competition in the marketplace breeds efficiency and that efficiency allows the industry to provide the double convenience of affordable cost and immediate service.

The vitality of the industry is directly related to a competitive situation which permits and assures to the consumer freedom of choice in selection of parts and services. The very existence of an independent automotive aftermarket is totally reliant upon a competitive structure unfettered by unreasonable restraints which would foreclose access to the market for repair and replacement parts.

It is exactly that freedom of choice and the exercise of that freedom of choice by the motoring public to select parts manufactured and supplied by the independent aftermarket that is critically threatened by extended emission warranties such as are provided in S.300, 3.321 and S.1123. It would be a grave injustice to reduce the competitiveness of the aftermarket industry. Yet, that is exactly what occurs when a mandated monopolistic long-term emissions warranty is imposed.

The issue raised by the long-term performance warranty is not environmental --- it is an economic issue --- it is a question of monopoly as opposed to free enterprise. It is an issue that springs from the language of the Clean Air Act and the EPA interpretation of that language.

In 1977 Congress attempted to strike a careful balance between the environmental benefits and the anticompetitive drawbacks of a mandated long-term warranty by amendment to the Clean Air Act. While recognizing that any mandated warranty destorts the marketplace and deprives the consumer of freedom of choice in selection of parts and services, the independent aftermarket nevertheless was prepared to live with a reduced warranty since it more closely conformed to the actual economic realities of the marketplace exercised on a voluntary basis by the industry.

It is submitted that such a mandated warranty was not and is not needed in order to protect the environment. The requirements for protection of the environment are met by maintaining in the Act the provisions for durability certification through mandatory recall provisions. Thus, the mandate of a warranty takes on the character of an imposition of economic control that is not related to or necessary for the attainment of desired clean air objectives.

The existence of a warranty has historically forced the vehicle owner back to the vehicle dealer, not only for warranty work but also for routine maintenance work, such as spark plug replacement. It is only human nature to refuse to risk the loss of something of potential value that has been paid for in the original price of the vehicle.

Commercial warranties offered on a limited basis and for a limited time and with limited scope must be distinguished from the broad-based mandated emissions warranty which is required by the subject bills. These warranties are recognized by the motoring public as what they are --- marketing programs initiated on a sporadic or periodic basis in the same manner as rebates or financing incentives and which are limited in coverage and scope and duration of offer.

Nevertheless, even these commercial warranties, with their evident and recognized limitations do impact on the marketplace. Such an impact pales when compared to that which occurs when a legally required, broad-based, extended term warranty is imposed. There is no precedent in any other area of economic activity in this country to compare with the mandated monopoly of the extended term emissions warranty. Without a doubt, such a mandated warranty raises completely different consumer expectations than do the voluntary and limited consumer warranties.

The question of an environmental need (as opposed to an economic objective) for a warranty must be addressed. In its own studies, the EPA has found that most vehicles failing an emissions test do so because of improper maintenance, removal of components by the owner or use of leaded gasoline. In the vast majority of cases, therefore, the system does not come under the terms of a performance warranty. What then can be accomplished by imposition of a requirement for a warranty offering that does so little for the environment but is so economically devastating to the aftermarket and to the consuming public? Such a warranty requirement only serves to hand to the vehicle manufacturers on a golden platter the means by which they can preclude the use of parts not manufacturered or sold by them.

Such a devastating impact on consumer choice and on an important and highly competitive industry is significantly exacerbated by any increase in the coverage of such a mandated warranty. The requirement, found in each of the bills to which this statement is addressed, that all new vehicles must have an emissions warranty for 10 years or 100,000 miles, does not provide any effective tools necessary to address the problem of transported air pollutants, but the requirement for such an unreasonably long-term warranty does impose a veritable death sentence on the competitive structure of the automotive aftermarket. The adverse economic effect of such an unreasonably long and unnecessary warranty term on the independent automotive aftermarket will seriously impede the effectiveness of that industry to accomplish its role in the preservation and protection of the environment. The result will be a decline in air quality.

The issue is economic, not environmental. It is monopoly over free enterprise. The issue must be decided based upon principles of competition and in light of our historical national opposition to monopoly. Our industry fought hard for the 1977 amendments to the Clean Air Act. Congress believed in us and we in it. Upon enactment of the amendments, it was assumed by all that competition had been preserved and the environment fully protected by the limitation of the performance warranty after 2 years/24,000 miles to those limited parts that are placed on a vehicle for the sole or primary purpose of controlling emissions.

It is submitted that now is the time to evaluate the consequences of any type of mandated warranty to the aftermarket industry and to the consumer. There is no environmental need nor is it economically desirable to "seal the hood" of a vehicle and prevent the vehicle owner from obtaining parts and services when and where he needs them and at competitive prices determined by free marketplace conditions.

H.R. 1239, introduced in the House by Representative Dannemeyer provides the opportunity for Congress to reassert its determination to protect competition as well as the environment.

it provides for a realistic term for a warranty on parts that are necessary for environmental protection. The length of the warranty is sufficient to produce assurances of durability of emission systems but is not any longer than it needs to be. It provides the consumer with environmental protection along with preserving freedom of choice. ASIA strongly supports this bill and urges Senate consideration and passage of identical legislative provisions.

This association respectfully requests that the economic issue be considered as it should be, as one totally separate and totally distinct from any environmental issue. The independent aftermarket must not be foreclosed from providing the parts and services that only it can provide efficiently, affordably and conveniently, since to do so will result in harm to the environment.

In commenting on the anti-competitive aspects of any legal mechanism which permits the exclusion of the independent aftermarket from the opportunity of access to the motor vehicle for an inordinately long period of time, the U.S. Department of Justice has warned that the inevitable consequences of such a legal mandate would be a substantial increase in concentration in the aftermarket with a consequent loss of the advantages of free and open competition.

It is respectfully submitted that the interests of free and open competition in the aftermarket are paramount and must be zealously guarded. The association urges amendment of bills being considered by this Subcommittee so as to provide for protection of the competitive structure of this industry.

Thank you for giving us this opportunity to express our views on this important matter.

Very truly yours,

John W. Nerlinger
President
Automotive Service Industry
Association

June 3, 1987

Acid Rain Partnership

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U.S. SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
SUBCOMMITTEE HEARING ON S. 321, ACID DEPOSITION CONTROL ACT OF 1987

Submitted by: Ohio-New Hampshire Acid Rain Partnership
Stephen H. Sedam, Ohio Environmental Council
Jacquelyn L. Tuxill, N.H. Citizens' Task Force on Acid Rain

Although the issue of acid rain has been before Congress for nearly a decade, legislation addressing the problem has yet to reach the floor of either the Senate or the House of Representatives. The debate surrounding the acid rain problem has frequently been characterized by regional divisiveness and dissension, making it very difficult for citizens and for policymakers to unite behind a solution to the acid rain problem.

The Ohio - New Hampshire Acid Rain Partnership was formed in 1985 in a unique effort by citizens to address the regional differences beween these two states on the issue and to seek agreement on what to do about the acid rain problem. The Partnership has successfully reached its goals, as demonstrated by its Consensus Report of Delegates which was jointly introduced into the Congressional Record on June 11, 1987, by Senators John Glenn and Warren Rudman (see attached).

We urge the Senate Committee on Environment and Public Works to consider the process and the recommendations involved in this citizen-based approach to the acid rain problem. We also believe that the following underlying principles from the Partnership recommendations, if incorporated into legislation, could assist tremendously toward national unity on this issue:

* The nation should commit now to significant reductions in both sulfur dioxide and nitrogen oxide emissions;

* The control program should allow high sulfur coal reserves to be competitive;

* The control program should include an equitable cost-sharing mechanism and positive incentives; and

* The control program should encourage and emphasize energy conservation.

If we as a nation are to successfully resolve this difficult problem -- and we must -- it is important to examine and address the concerns underlying the dissension. Arguments exploiting the scientific complexity of the acid rain problem have contributed in the past to the dissension and have frequently clouded the search for a workable solution. But the real source of the divisiveness has been the differences in how states and regions are or would be affected -- environmentally, economically, and socially -- by acid rain or its control.

All 31 eastern states and many western states today receive acid deposition. There are dissimilarities, however, in how much they receive, the relative contributions of sulfur dioxide and nitrogen oxides, and the extent of the damage being experienced. Acid rain control would also affect states differently because of the geographical concentration of emissions in the Midwest. Depending upon the structure of a control program, there could be considerable regional inequalities in the economic and social impacts of control and differing impacts on the high sulfur and low sulfur coal industries.

The northeastern states, most extensively affected by acid rain, are primarily concerned about the impacts of acid rain and have been outspoken in calling for emissions reductions. The chief concern of midwestern states -- where some of the most acidic rain actually falls but where the greatest emissions reductions would occur -- are control costs and how to pay for them. In states where the high sulfur coal industry is important economically, there has been added concern for both the social and economic impacts of acid rain control upon the high sulfur coal industry and coalmining communities.

These differences, here very much simplified, have effectively pitted state against state, region against region, high-sulfur coal against low-sulfur coal. These tough economic and social questions of acid rain control are now keeping us from moving forward and addressing the very serious natural resource, public health, and economic impacts of acid rain.

By bringing to light the concerns that divide us on this issue, we can begin to sort through the various options for dealing with the acid rain problem and resolve it in an equitable manner that does not unfairly burden any one region or segment of our society. Until we attempt to find some common ground, however, the divisive atmosphere will continue to hamper resolution of the problem.

The Acid Rain Partnership began work from this perspective and successfully produced a set of recommendations agreeable to the participants from both states. The Partnership's recommendations are serious and substantive and provide dramatic demonstration that agreement is possible on this issue.

The Partnership began late in 1985, when 104 Ohio citizens were paired with 104 New Hampshire citizens. Although the partners were not selected as a scientifically random sampling, they were selected to include people from a variety of backgrounds and with different viewpoints on the acid rain problem. They were not a collection of experts, but were people who had the interest, commitment, and time to participate. Their ranks included bankers, farmers, engineers, coal miners, realtors, teachers, businesspeople, and homemakers, to name a few.

Using an 85-page Acid Rain Workbook, these citizens studied the science, technology, economics, and legal aspects of acid rain. The partners wrote to each other, exchanging answers to prepared questions at the end of each of six chapters in the Workbook. The questions they answered were phrased in a way that asked them to look at the problem from differing points of view in order to broaden their perspectives. Their answers were compiled and made available to the delegates who put together the recommendations.

From the 208 partners, 9 were chosen from each state to act as a delegation. Together these 18 delegates toured each state for three days in order to get a first hand feeling for how the problem affects the two states. In Ohio they visited strip mines, a state-of-the-art coal washing facility, a clean coal technology research facility, and a coal-burning power plant; they had briefings from state officials; and they spent an evening talking with a welfare director, job placement officer, and coalmining families from Ohio's largest coal producing county. In New Hampshire they visited the U.S. Forest Service research station at Hubbard Brook and had briefings from state officials, utility and tourism representatives, and scientists and researchers from throughout New England.

The 18 delegates then sat down with a professional mediator and, over a four-day period, put together recommendations designed to address the very real concerns that both Ohio and New Hampshire have about acid rain control. In developing the Partnership's consensus recommendations, preserving the coal industry and minimizing electric rate impacts were of paramount importance in addressing Ohio's needs, whereas New Hampshire's concern for immediate reduction in acid-rain-forming pollutants was the priority.

Many elements of S. 321 are similar to those found in the Consensus Report of the Partnership, although a number of provisions key to the Partnership are absent from S. 321.

Both proposals call for a significant and immediate reduction in sulfur dioxide and nitrogen oxides from stationary and mobile sources nationwide.

Both control programs call upon states to develop State Implementation Plans (SIPs), although the Partnership recommends that socio-economic and environmental costs as well as long-range cost effectiveness be considered in development of the SIPs.

Whereas both proposals seek to reduce emissions by a variety of methods, the Partnership strongly believes that a technological approach that preserves a market for high sulfur coal is the preferred method of achieving large-scall emission reductions. Furthermore, efforts to limit fuel switching were seen as necessary to provide for economic stability in the Midwest.

The Partnership incorporated a number of recommendations to promote the use of control technologies. One of those included a waiver from total compliance with the first tier of emission reductions, under a restricted set of conditions, if more advanced technology is to be the method used to achieve compliance with the second tier of larger scale emission reductions.

Between five and seven years after the effective date of the control program, the Partnership suggests a period of research and evaluation as a method for assessing program effectiveness.

The most radical departure of the Partnership recommendations from S. 321 comes in how the emissions reductions will be financed. While S. 321 relies on the polluter pays approach, the Partnership calls for the creation of a national Trust Fund. Derived from an emissions fee, a surcharge on consumers of electricity, and a vehicular registration surcharge, the Trust Fund would be used to pay for a variety of control program related costs such as the purchase of equipment, energy conservation programs, and rewards to emitters for early compliance.

Energy conservation is also see as a critical component of each acid rain control proposal.

Recognizing that acidic air pollution is an international phenomenon, S. 321 and the Partnership recommend implementing agreements to control cross-border deposition. While S. 321 mentions air pollution control agreements with Mexico, the Partnership suggests full implementation of the Reagan-Mulroney Agreement.

Attached is an analysis of S. 321 and the Consensus Report of the Acid Rain Partnership to provide a more detailed comparison of the two proposals.

The Acid Rain Partnership does not endorse any particular piece of acid rain related legislation. However, it is useful to remember the principles of the Partnership's Consensus Report when evaluating acid rain control proposals and how those proposals may forge a common ground between the Midwest and its downwind neighbors. It is only when this common ground is reached as has been achieved through the Acid Rain Partnership that Congress can move forward to resolve the environmental and economic issues involved in the control of acid rain.

COMPARISON OF S 321 WITH THE ACID RAIN PARTNERSHIP (ARP) RECOMMENDATIONS

Required Annual Levels Of Emissions Reductions

S 321
Sulfur Dioxide: 12 million tons, based on 1980 levels. Nitrogen Oxides: 4 million tons, which includes stationary sources and specific reductions for vehicles.

Acid Rain Partnership
Sulfur dioxide: 10-12 million tons, based on 1980 levels. Nitrogen Oxides: 2 million tons for stationary sources, and additional reductions resulting from compliance with mobile source emissions standards.

Timetable for Reductions Compliance

S 321
Within 3 years of enactment, stationary sources must certify method of compliance. Fuel switching method requires compliance within 5 years. Other methods require binding contractual agreements in 5 years, and final compliance by 1996.

Acid Rain Partnership
Phase I: Five years are given to reduce annual Sulfur Dioxide emissions by 5 million tons.
Phase II: Total reductions of 10-12 million tons must occur within 12 years from date of enactment.

Emissions Reductions for Stationary Sources

S 321
A statewide annual average emissions rate for fossil fuel fired electric utilities and industrial boilers will be set at 0.9 pounds sulfur dioxide per million Btu, and 0.6 pounds nitrogen oxide per million Btu.

Acid Rain Partnership
To be addressed by State Implementation Plans.

Emissions Reductions for Mobile Sources

S 321
New Source Performance Standards for vehicles under the Clean Air Act should be retained. Sulfur content in diesel fuel is limited to the average sulfur content of gasoline (0.05%) by 1988. After 1988, vehicle inspection and maintenance programs for nitrogen oxide emissions are required.

Acid Rain Partnership
The New Source Performance Standards should be strengthened. Diesel emissions should be controlled. Vehicle inspection and maintenance programs should be developed nationwide.

Allocations of Emissions Reductions to States

S 321
Based on the proportion of each state's utility sulfur dioxide emissions in excess of 0.9 pounds per million Btu.

Acid Rain Partnership
Not addressed.

State Plans for Emissions Reductions

S 321
Within two years of enactment each state, with EPA approval, must adopt an enforceable plan to meet allocated reductions.

Acid Rain Partnership
Each state is to adopt a State Implementation Plan (SIP) which considers environmental and socio-economic impacts, and allows for public input.

Waiver Provisions

S 321
Not addressed.

Acid Rain Partnership
States using control technologies still in the demonstration stage may, with EPA approval, be granted a time waiver for fulfilling their part of Phase I reductions (5 million tons of sulfur dioxide nationwide) if: at least one-half of Phase I reductions have been met; a plan is submitted outlining steps to bring technology on line; and the plan substantiates that Phase II goals will be met.

Contingency Plan for States Without Approved Plans for Reductions

S 321
Each stationary unit must meet a sulfur dioxide emission level of 0.9 pound per million Btu limit on a monthly average basis by 1996.

Acid Rain Partnership
Not addressed.

Methods Available for States to Achieve Reductions

S 321
A variety of methods including: pollution controls; energy conservation; early retirement of polluting sources; least emissions dispatching; coal washing; fuel switching; and trading of emissions within a state.

Acid Rain Partnership
A variety of methods including: pollution controls; coal washing; and conservation; but not including fuel switching or

trading of emissions within a state. This plan discourages retrofitting of old boilers unless no other option is as cost effective.

Paying for Emissions Reductions

S 321
Utilization of a "polluter pays" approach which passes on costs to the consumer.

Acid Rain Partnership
Money should be derived from several sources including: federal and state government; private industry; and a Trust Fund. The Trust Fund shall be supplied by: an emissions fee levied on emitters; a rate surcharge levied on consumers of electricity; and a vehicular registration surcharge levied by state governments. Trust Fund allocations to the states would be made based on a formula relating the cost of each state's SIP to their required emissions reductions. A state Board of Trustees would allocate these funds within the state. Trust Fund money would be available for the purchase and installation of emission control equipment, advanced coal cleaning and burning technologies, boiler retrofits, and energy conservation measures. Funds could be provided to utilities and industries in the form of pollution control bonds, grants, and low and no-interest loans.

Operation and Maintenance costs of emission control equipment would ultimately be borne by the utility or industry and their customers.

Incentives for Reducing Emissions

S 321
Financial Incentives: The Treasury Department would be directed to conduct a study of emissions tariffs as a means to encourage pollution reduction.
Other Incentives: Not addressed.

Acid Rain Partnership
Financial Incentives: Trust Fund allocations would be increased for technologies that promote coal washing and clean burning options. Tax free bonds, accelerated return on capital costs, depreciation allowances, and dollar bonuses for early project completions and construction work in progress would be made available. An emissions fee would be levied on emitters to supply the Trust Fund.
Other Incentives: Public recognition should be given to utilities and corporations that meet reduction goals.

Research and Evaluation

S 321
Not addressed.

Acid Rain Partnership
A re-evaluation of sulfur dioxide reduction programs would be madeby the seventh year after the start of program. Federal funds for on-going research would be made available to monitor the effectiveness of the emission control program to evaluate the need for adjustments in regulations.

Conservation

S 321
Energy conservation should be given priority for achieving emissions reductions.

Acid Rain Partnership
Trust Fund money would be available for trustee approved conservation programs. Television ads, posters, and school courses should be designed to demonstrate the importance of conservation in reducing emissions. The national appliance standards law should be implemented. The Department of Energy's state and community conservation and research and development programs should be protected from budget cuts. Federal funds should be appropriated for conservation technology sharing programs. Public utility commissions must consider conservation measures prior to authorizing new power plants.

International Cooperation

S 321
The President is directed to negotiate a tripartite agreement with Canada and Mexico for controlling air pollution. He must also reach a separate agreement with Canada to achieve comparable emission reductions. The Secretary of State and the EPA must negotiate an agreement that the Nacozari Smelter in Mexico achieve U.S. New Source Performance Standards prior to start-up.

Acid Rain Partnership
The Reagan-Mulroney agreement should be implemented immediately.

COMMENTS FOR THE RECORD

STATEMENT OF THE AMERICAN INDEPENDENT REFINERS ASSOCIATION REGARDING CLEAN AIR ACT PROPOSALS

FOR THE
ENVIRONMENTAL PROTECTION SUBCOMMITTEE
OF THE
ENVIRONMENT AND PUBLIC WORKS COMMITTEE
UNITED STATES SENATE

June 26, 1987

The American Independent Refiners Association is a trade association of independent and small oil refiners throughout the United States. We appreciate this opportunity to submit our comments to the Committee for consideration, with regard to the Clean Air Act proposals currently pending before the Subcommittee.

Given the current economic condition of the domestic oil industry, we are concerned about provisions being considered which would require costly control measures to be implemented in order for refiners to continue operating. We reiterate the request made by the National Petroleum Refiners Association (NPRA) that the Committee re-examine the assumptions and projections within the legislative proposals which would impact the refining and petrochemical industries.

Specifically, we direct our comments to the provision within several bills which would require refiners to severely reduce the allowable sulfur content of diesel fuel. The provision found in S. 300, S. 321, S. 1123, and S. 1351 would require the sulfur content of diesel fuel to be reduced to 0.05 percent by weight or even lower to 0.25 percent in S. 321 and S. 1123. This is a dramatic reduction for a refinery. Such a requirement would mandate the construction of new equipment in most refineries.

There have been conflicting reports on the ability of the domestic refining industry to desulfurize in order to meet the proposed limit. We draw your attention to the recent NPRA study which reflects a comprehensive refinery-by-refinery survey representing 98% of the nation's crude oil processing capacity. As this report has already been made part of the record, we would like to briefly state our concurrence with findings of that survey.

Our concerns are summarized below:

-If refineries had to meet a new sulfur limit, the economic or environmental permitting constraints would severly hinder the small, independent refinery. NPRA has estimated the desulfurization cost to refineries to be $3.3 billion in capital expenditures with an additional $1.2 billion a year (reflecting 7.7 cents per gallon for highway diesel) in operating costs.

-There are currently great hinderances to acquiring the capital investment necessary for the upgrading of a facility. Given the volatile price of the product, there is a less than confident atmosphere with investors for recovering the large investment necessary.

-Of great concern is the short time frame set in the proposed legislation. It is unrealistic to expect that the needed capacity could be built within the short one to two year mandate.

-In the past refiners have put in place many the environmental requirements mandated by law to reduce the volume of harmful industrial emissions. However this requirement, in our view, is not cost-effective. It is not reasonable because the sulfur dioxide emissions from diesel fuel are a relatively minor source in relation to total sulfur emitted, (less than 2%).

The American Independent Refiners Association therefore opposes all of the proposed legislation noted above.

THE IZAAK WALTON LEAGUE OF AMERICA
INCORPORATED

STATEMENT OF

MARCHANT WENTWORTH
CONSERVATION ASSOCIATE
IZAAK WALTON LEAGUE OF AMERICA

ON BEHALF OF THE

IZAAK WALTON LEAGUE OF AMERICA
AND THE
AMERICAN FISHING TACKLE MANUFACTURERS ASSOCIATION

SUBMITTED FOR THE RECORD OF HEARINGS BEFORE
THE SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
U.S. SENATE

JUNE 17, 1987

National Office: Suite 1100, 1701 N. Fort Myer Drive, Arlington, Virginia 22209 • Phone 703 528 1818

This testimony is submitted on behalf of the Izaak Walton League of America and the American Fishing Tackle Manufacturers Association.

The Izaak Walton League of America (1701 N. Ft. Myer Drive, Suite 1100, Arlington, VA 22209) is a national conservation organization composed of 46,000 members in 412 chapters throughout the country. Since its founding in 1922, the Izaak Walton League of America (IWLA), has sought to preserve our natural heritage through citizen education and advocacy.

The American Fishing Tackle Manufactures Association (1250 Grove Ave., Barrington, IL 60010) is the national trade association of the fishing tackle industry. Formed in 1933, the American Fishing Tackle Manufacturers Association (AFTMA) has over 500 regular and associate members who supply 95 percent of the fishing tackle and related accessories sold annually in the United States.

The IWLA and the AFTMA strongly support The Acid Deposition Control Act of 1987 (S. 321). We urge members of this subcommittee to take immediate action to approve this legislation.

We urge your support of S. 321 because it offers a national solution to a national problem and provides the states with an emissions reduction program that is both fair and flexible. The acid rain controls contained in S. 321 are needed because:

1. Present levels of acid deposition have already resulted in the acidification of hundreds of lakes and streams throughout the country. Thousands of other lakes and streams are threatened by acidification unless present levels of acid deposition are reduced;

2. The loss of fish and other wildlife resources that results from this acidification deprives millions of outdoor users of valuable recreational opportunities and;

3. The loss of these recreational opportunities will reduce sales of the sports and fishing equipment that support those opportunities and erode the economy of the fishing tackle and recreational equipment industry.

We would like to provide greater detail on each of these three points.

1. ACID DEPOSITION IS HARMING THE NATURAL RESOURCE BASE THAT SUPPORTS THE RECREATION AND COMMERCE OF OUR MEMBERS. ACID RAIN LIMITS RECREATION OPPORTUNITIES FOR OUTDOOR USERS AND REDUCES SALES OF RECREATIONAL EQUIPMENT PRODUCED BY OUR MEMBERS.

The Office of Technology Assessment (OTA) has reported that at least 10 percent of freshwater lakes in New England have already been affected by acid deposition. In Maine, the acidity of over 1,300 lakes has increased more than eight times since 1974. As a consequence of this increased acidity, reproduction of native brook trout has ceased in all of the Maine lakes above 2,000 feet that have been sampled. In Massachusetts, eight out of the ten best trout fishing ponds on Cape Cod are now too acidic to support fish. In Pennsylvania, the Pennsylvania Fish Commission has warned that unless acid rain controls are enacted soon, Pennsylvania will lose more than 5,000 miles of prime trout streams to acidification. A 1985 study by EPA revealed that over 50 percent of Florida's 7,700 lakes were already acidic and a report by the Wisconsin Department of Natural Resources states that 3,400 lakes in that state are susceptible to damage from acid rain. In the adjoining state of Minnesota, the Minnesota Pollution Control Agency (MPCA) found that at least 2,000 of the 15,000 lakes are sensitive to acid rain.

ACID RAIN CAUSES DIRECT ECONOMIC LOSSES TO OUTDOOR USERS AND SUPPLIERS.

Nationwide, sportsfishing is not only enjoyed by millions of Americans, but it contributes billions to the national economy. According to the Sports Fishing Institute (SFI), an estimated 60 million people participated in this national pastime. The indirect economic benefits of sportsfishing totaled another $25 billion. In 1985, an estimated 34 percent of the adult men in this country participated in this sport. The fishing tackle industry employs about 1,000,000 people.

The economic impact of acid rain damage has not been examined in great detail. However, the figures that are available demonstrate that damage to sports fishing, recreation , and tourism, could amount to billions of dollars. We believe that the dollar amount of this damage greatly exceeds the cost of acid rain controls.

A preliminary assessment performed in 1985 by the National Acid Precipation Assessment Program (NAPAP) revealed that acidification of just the Andirondack lakes alone could result in a loss of betwen $0.7 to $12 million in recreational income to the area. The Pennsylvania Fish Commission has predicted that unless acid rain controls are enacted soon, acid deposition could acidify more than 5,000 miles of prime trout streams and could cost the state an estimated $35 million a year in lost recreation income. In Minnesota, state officals have warned that acid rain damage in that state could cost the state $40 million annually. In only one area of Minnesota, the popular Boundary Waters Canoe Area, the Minnesota Pollution Control Agency estimated that acid rain damage could cost the area 3,000 jobs. And in Wisconsin, the Department of Natural Resources estimated that fishing contributes an estimated $54 million to the state economy and that 3,400 lakes in Wisconsin are susceptible to acid rain damage. In summary, the best figures now available indicate that in only the three states of New York, Pennsylvania, Minnesota, the cost of acid rain could amount to as much as $87 million.

It is important to note that this estimate of $87 million includes the economic impacts on fishing and outdoor recreation in only three states. However, numerous studies indicate that the problem of acidifcation occurs far beyond this three state region. As a consequence, it is likely that the total nationwide economic damage would be much greater than $87 million.

However, even these figures, as large as they may be, still overlook the economic impact on other "non-users." The General Accounting Office, in their analysis of the short-comings of the econometric effort by the National Acid Precipation Assessment Program commented that:

> "to the extent that there are non-user values asociated with the existence of fish populations in the Adirondacks, this figure may well understate the total losses in the Adirondacks attributable to acidic deposition."

In spite of these findings, the federal government has failed to undertake any serious study of the economic damage to natural resources. NAPAP has never formally released the preliminary assessment of economic damage in the Andirondacks and has refused to undertake any additional econometric studies on the effect of acid deposition on the economy. According to a GAO report released in April, 1987, NAPAP staff economists were not replaced when they left the program and the NAPAP Director of Research stated that until the effects of acidic deposition can be quantified, NAPAP will not be funding any economic analysis efforts.

In our view, this approach is short-sighted and ignores the negative effect that acid deposition has on the recreational and fishing tackle industries.

ACID RAIN THREATENS WATERFOWL POPULATIONS

The Izaak Walton League released a report in March, 1987 that details new evidence that indicates that acid rain may have contributed to the mysterious 60 percent decline of black ducks that has occurred since 1955. Research demonstrates that lake and pond acidification may be causing serious and widespread damage to the breeding grounds of many other water birds.

One study performed at the Patuxent Wildlife Research Center in Laurel, Md. in 1985 found that the mortality of black duck young raised on acidic wetlands was over three times that of ducklings raised on non-acidic control wetlands. The researchers concluded that:

> "those results present strong evidence of the potential deleterious effect of wetland acidification on the productivity of free-ranging black ducks and possibly other populations of dabbling ducks inhabiting areas affected by acid precipitation."

The problem is not just limited to the Eastern part of North America. The seasonal wetlands in the prairie pothole regions of Minnesota, Wisconsin, Michigan, and North Dakota, which annually produce some 5 million ducks, are of particular concern. In Minnesota alone, preliminary samplings show "alarming low" pH levels in seasonal wetlands during spring runoff.

Kathleen Fischer, a researcher with the Canadian Wildlife Service in Ottawa summed up the problem by saying:

> "We now know that acid-stressed lakes do not produce many baby ducks."

This nation has spent millions of dollars to maintain populations of waterfowl by preserving wetlands, setting game regulations, and banning DDT and lead shot. However, this new evidence indicates that present levels of acidification may be undercutting those efforts. As a result of the evidence presented in this study, the Izaak Walton League believes that further delays in passing measures to control acid rain may put an extensive regional fish and wildlife resource at great risk.

CONCLUSION

The Izaak Walton League of America and the American Fishing Tackle Manufacturers Association strong urge the members of the subcommittee to approve the acid rain control provisions contained in the Acid Deposition Control Act of 1987 (S. 321).

STATEMENT OF

ALVIN A. COOK

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FOR THE

SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

JUNE 1987

Summary

We analyze the economic costs, benefits, and impact on the U.S., on individual states, industries, and occupations, and on the nation's international competitiveness of acid deposition control legislation. The costs of recent Senate bills such as S. 95, S. 300, S. 316, and S. 321 will likely be between $4 and $9 billion annually and will be borne disproportionately by certain states and electric utilities, mining industries, and electricity-intensive sectors. We estimate these costs for each state and for 180 electric utilities. The benefits of the investments in acid rain control technologies will also be substantial: they will reduce sulfur dioxide emissions by two-thirds and create substantial profits for industry and jobs for workers. We estimate these benefits for 80 industries and 475 occupations within each state. In addition, acid rain control programs may create substantial export opportunities for U.S. companies.

Opening Statement

Mr. Chairman, members of the Subcommittee, it is a pleasure to present this statement to you on behalf of Management Information Services, Inc. MISI is a private economic consulting and data services firm in Washington, D.C., which over the past two years has conducted several major studies of the economic impact, costs, and benefits of acid deposition control legislation and related pollution abatement programs. This work was funded internally by MISI and was not financed by any industry, utility, environmental, or special interest group, and we consider our findings to be objective and unbiased. We discuss below some of the implications of our work.

Widespread Concern Over the Economic Effects of Acid Rain Control

A major reason for the acrimony in the debate over the control of acid rain is the notion that controlling and abating acid precipitation is extremely costly, imposes an enormous drain on industry profits, and depletes workers' jobs. Thus, in an era of record U.S. trade deficits, lagging productivity growth, and increasing concern over the "competitiveness" issue, many businessmen and government officials are reluctant to commit themselves to a program they perceive as detrimental to the nation's economy. This concern, however, may be misplaced, for we determined that a major effort to control acid rain would generate substantial sales and profits for U.S. businesses, provide many thousands of jobs for American workers, and enhance the U.S. international competitive position.

We recently analyzed the economic impact of two bills introduced last year in the U.S. Congress: H.R. 4567, the "Acid Deposition

Control Act of 1986," and S. 2203, the "New Clean Air Act" (Exhibit 1). These bills had provisions similar to those introduced thus far in the Senate, such as S. 95 (Senator Kerry), S. 300 (Senator Stafford), S. 316 (Senator Proxmire), and S. 321 (Senator Mitchell), and the effects of these latter bills will be analogous. Ours is the first detailed study of the state-by-state industry and job effects of the two major acid rain control bills introduced during the last Congress.

We found that, while the overall economic benefits are strongly positive, the impact on some businesses, jobs, and states will be negative. We identified the sectors of the economy that would benefit and those that would be harmed. In addition, we categorized states into "winners" and "losers" on the basis of whether their economies will be affected favorably or unfavorably by the legislation. The major economic effects of the legislation are summarized in Exhibit 2.

Acid Rain Abatement Will be Costly and Will Have Significant Effects on Electric Utilities

Over a fifteen year period, any legislation similar to last year's H.R. 4567 or S. 2203 would cost electric utilities and their ratepayers $125 billion more than in the absence of the legislation. The disruptions caused in the coal mining industries and electricity-intensive sectors in some states, increasing unemployment in these and related industries, have been known for some time. These two issues -- high costs and lost jobs -- have been used successfully in arguments by opponents of the legislation.

However, conformity with the legislation would significantly reduce sulfur dioxide emissions -- one of the principal elements of acid rain and one of the nation's most serious environmental problems -- by as much as two-thirds by 1995. These estimated sulfur dioxide emission reductions, by state, are shown in Exhibit 3.

Nevertheless, bills such as S. 95, S. 300, S. 316, and S. 321, would be expensive for many electric utilities. We analyzed the effect of legislation on each of the 180 major U.S. electric utilities in the 48 contiguous states.[1]

Costs could be over $10 billion annually, forcing many electric utilities to raise current rates by as much as 30 to 60 percent over the next 15 years. Moreover, the costs are distributed unevenly among states, as illustrated in Exhibit 4. In California, New York, and Texas, for example, costs would rise little. Costs, however, would rise dramatically in other states such as West Virginia, Ohio, and Minnesota. The economic impact on individual electric utilities within a state also varies widely, ranging in some states from as low as 2 or 3 percent to as high as 50 or 60 percent for utility companies in the same state (see Exhibit 5).

We disproved two myths about the distribution of the costs of acid rain control legislation. One is that only electric utilities in a small group of Midwestern states, where high-sulfur coal is mined, would be adversely affected. However, Mississippi Power Company, for example, would face a rate increase well in excess of 20 percent, the customers of SCANA corporation in South Carolina face a 20 percent increase, the rates of Utah Power and Light would increase more than 10 percent, Rochester (New York) Gas and Electric Corporation rates may have to be raised 10 percent, and the Virginia Power Company may have to raise rates by 17 percent.

The second misconception is that all electric utilities in the Midwest would be adversely affected. This is not true. In Ohio and Wisconsin, for example, where most companies would be significantly affected, the impact on the Ohio Edison Company and the Wisconsin Public Service Corporation would be minimal.

Acid rain abatement legislation can pose a classic Catch 22 situation. Relying on the "polluter pays" maxim, with no subsidies to cushion rate increases for utility customers, may imply rate increases so drastic they are politically nonviable. On the other hand, if Federal subsidies are written into the legislation, they may be so large that they run up against current fiscal constraints. Legislation passed without significant subsidies, however, may imperil the financial viability of some of the nation's most important electric utilities, and many smaller ones as well.

By significantly increasing the cost of electricity from coal-fired power plants, the legislation would make other options -- such as nuclear power -- more attractive. This is not widely recognized.

The Investments Required to Abate Acid Rain Will Create Significant Economic Benefits

The costs involved represent one side of the debate. Thus, we found that implementation of the control legislation would be expensive, costing electric utilities and their customers as much as $125 billion to implement over a 15 year period. And it is true, as charged in arguments against the legislation, that the disruptions would increase unemployment in mining, electricity-intensive, and related industries in some states. These issues of high costs and lost jobs must be recognized and dealt with intelligently.

What few people recognize, however, is that the investment -- between $4 billion and $9 billion per year -- would be a significant stimulus to the U.S. economy and to the economies of most states. We found, for example, that acid rain abatement legislation will create between $7.5 and $13.1 billion in industry sales, $681 million to $1.4 billion in business profits, and 101,000 to 195,000 jobs (see Exhibit 2).[2]

It must be emphasized that the picture is not uniformly positive.

We estimated the distribution of the economic benefits and costs among 80 industries and 475 occupations within each state. In some instances, for example, demand for high-sulfur eastern coal will decline, and some businesses will suffer. And while the total number of jobs would increase under either bill, some workers in some occupations will lose their jobs.

Accordingly, the impact of acid rain control legislation on the industries and the labor markets in different states is a major concern. The prevailing notion is that such legislation would seriously damage states in the Midwestern and Appalachian regions, further exacerbating the already serious economic problems many of them face. It is from these parts of the nation that much of the most intense opposition to acid rain control programs arises. However, the reality is much more complex, and we found that the net economic effects on most states -- including most Midwestern and Appalachian states -- will be strongly positive, with the precise effects depending importantly on the specific legislation. These are summarized in Exhibit 6.

For example, the impact of H.R. 4567 would be adverse on Illinois and Montana, whereas the impact of the Senate bill on these states would be favorable. Conversely, the impact of S. 2203 on Alabama, North Dakota, and West Virginia would be negative, but the impact of the House bill on these states would be positive. These findings emphasize the folly of making blanket statements about the impact of generic acid rain control legislation on specific states or groups of states. Quite simply, the result often depends on the particular bill and the specific state in question.[3]

We determined that, in economic terms, 10 states would be major winners under most acid rain control bills: Arizona, California, Colorado, Connecticut, New Hampshire, Oregon, Rhode Island, Utah, Vermont, and Washington. Ten states will be major losers: Illinois, Iowa, Kansas, Kentucky, Louisiana, Maryland, Missouri, Ohio, Oklahoma, and Pennsylvania. Perhaps most interesting, 13 states have been classified as "paradoxes": Alabama, Michigan, Mississippi, Montana, Nevada, New Mexico, North Dakota, South Dakota, Tennessee, Virginia, West Virginia, Wisconsin, and Wyoming. The economic impact on them would be favorable or negative depending on the specific provisions of the legislation. These state classifications are illustrated in Exhibit 7.

The likely economic impact on specific states of different acid rain control bills is not widley appreciated, often even by those intimately familiar with the legislation. We believe that this work provides important new information that will make a fundamental change in the focus of debate.

For example, we determined that Michigan ranks fifth among the states in terms of likely gains from the stringent S. 2203 provisions (the state would gain $1.1 billion in sales and 13,800 jobs) and Wisconsin ranks ninth (gains of $400 million in sales and 5,100 jobs), while both Tennessee (gains of $204 million in sales and 2,300 jobs) and Virginia (gains of $390 million in sales and 3,200 jobs) are among the major winners under H.R. 4567. Yet, ironically, officials from these states have often opposed acid deposition control legislation in the past as being harmful to their states' economies.

Acid Rain Abatement May Stimulate
U.S. Exports and Reduce the Trade Deficit

Would acid deposition control legislation contribute to U.S. international trade difficulties and and export-import imbalances? No, not necessarily, according to our analysis. We determined that the capital goods, industrial products, systems, and supporting goods, services, and processes required for acid deposition control and abatement are produced almost entirely by domestic U.S. businesses. Thus, 95 percent of the direct expenditures on the required abatement and control products and systems would accrue to U.S. firms and result in a significant business and industry stimulus. The only notable foreign presence is the Mitsubishi Corporation, and it has less than a 3 percent U.S. market share.[4]

The jobs created would be almost entirely for American workers, often in high-skilled, well-paying manufacturing jobs. Further, since the acid deposition problem is probably even more acute in Europe and Japan than in the U.S., the expertise and economies of scale to be gained by U.S. firms offer large potential export opportunities.

There is another dimension to the international opportunities for U.S. businesses. Some of the largest and most lucrative opportunities for U.S. exports of environmental technology and services are with the rapidly industrializing Asian nations, such as Taiwan, South Korea, and Hong Kong, with which the U.S. presently has large trade deficits.[5] These nations, and others, will be spending heavily over the next decade to clean up their environment. American companies, using techniques and equipment developed over the past 20 years in U.S. pollution abatement and control efforts -- including acid rain abatement, can obtain a large share of this Asian business. Indeed, for many of these companies the Asian market may represent a golden opportunity for further sales and profits. Success abroad will also narrow the nation's trade deficit as millions of dollars of equipment -- from large electrostatic precipitators and hazardous-waste incinerators to delicate and sensitive monitoring instruments -- are sold abroad.

This is one area in which U.S. companies still maintain a strong competitive advantage, and American companies have an excellent chance to capture a substantial share of the emerging Asian market. MISI estimates that the world-wide market for air pollution control equipment alone will reach $15 billion annually by 1995, with well over half of the total being spent outside the U.S. and Europe.

Waste management will be another high growth field, as small densely populated countries such as Taiwan, Hong Knog and Singapore are forced to cope with ever increasing amounts of refuse and hazardous wastes. To cite only one example, the pressing need for environmental cleanup in Taiwan, coupled with the country's low international debt, make it likely that the nation will lead the way among the rapidly industrializing nations in expenditures for pollution control and waste management.

U.S. consultants and engineers can play an especially important role in breaking into new international markets. If they win contracts to identify and propose solutions for pollution problems, it is likely that their proposals will be designed around American made equipment, giving American manufacturers an edge in bidding against their Japanese and European competitors.

At least as important, environmental issues are coming to the forefront in many underdeveloped nations as well. These countries see that their own growth and productivity are being hampered by urban pollution and declining agricultural yields.

These severe environmental problems have recently been recognized by the international community. The World Commission on Environment and Development, chaired by Gro Harlem Brundtland, the Norwegian Prime Minister, concluded that economic growth, poverty alleviation and environmental problems have to be considered as a whole.[6] Further, the World Bank has recently created an Environmental Directorate to coordinate and expand Bank funding for major environmental projects in developing nations.[7]

This increase in concern and funding has potential close links to Treasury Secretary Baker's international debt relief plan, which emphasizes that the only way for the third world to handle its debt burden is to grow economically with the aid of the wealthier industrialized nations. Thus the opportunities for U.S. exports are immense, and the industry stimulation, expertise, and economies of scale gained from acid deposition control programs will enhance these.

However, while the opportunities exist, they must be seized quickly. We have already noted the foothold the Mitsubishi Corporation has in the U.S. market. The experience of the past two decades should not, to say the least, make us sanguine about the potential for Japanese competition in both the U.S. and the international markets.

Further, the Canadians are also becoming keen competitors in this area. For example, Fenco Engineering, Ltd., of Toronto, is building a $50 million pollution control plant at the Nacozari copper smelter in Northern Mexico. The project is financed 80 percent by a loan from the Export Development Corporation, a Canadian government Crown corporation. The plant is one of the largest and most technologically advanced in the world and it will reduce by 90 percent the acid rain produced by the Smelter -- which has been falling on the Southwestern United States. This illustrates that Canadian companies are in the forefront of acid deposition control technology and stand to profit handsomely if U.S. businesses fail to act expeditiously.

Indeed, Fenco executives note that the worldwide market for major engineering development projects has been declining in recent years and that pollution abatement control projects -- such as the Nacozari smelter -- are becoming increasingly important in maintaining business sales and employment.[8] Since most of the subcontractors and suppliers to Fenco are Canadian firms, this business has substantial multiplier effects throughout the Canadian economy -- just as it would have in the American economy had a U.S. firm won the project.

Conclusion

In sum, while few Americans seriously question the ecological and environmental imperative for confronting acid rain, solving the problem has been hindered by our perception that the required remedy would be economically harmful to us. This is a misconception, for while the severe structural and regional costs must be recognized and dealt with, the United States stands to gain considerably from an ambitious abatement program.

Footnotes

[1] Management Information Services, Inc. Impact of Acid Rain Abatement Legislation on States and Electric Utility Company Costs and Rates. Washington, D.C., December 1986.

[2] Management Information Services, Inc. The Net Costs and Benefits to Each State and to the Nation of Acid Rain Abatement Legislation. Washington, D.C., February 1987.

[3] For an analysis of the impact on Ohio see Alvin A. Cook and Jerome D. Rosenberg. "The Ohio Story: The Economic and Employment Benefits of Controlling Acid Rain," Amicus Journal, Fall 1986, pp. 5 - 7.

[4] See The Net Costs and Benefits to Each State and to the Nation of Acid Rain Abatement Legislation, op. cit., p. 68.

[5] Douglas R. Sease. "Asia's Industrial Waste Could Spell Profits for U.S. Firms," Wall Street Journal, June 9, 1987, p. 6.

[6] See Melvyn Westlake. "Trouble in the Third World's Environment," South, May 1987, pp. 18-21.

[7] See Constance Holden, "World Bank Launches New Environmental Policy," Science, May 15, 1987, p. 769.

[8] Alvin A. Cook and Jerome D. Rosenberg. "Acid Rain Cleanup Means Jobs for U.S., Canada," Toronto Star, May 12, 1987, p. 24.

Exhibit 1

Comparison of the Major Provisions of H.R 4567 and S. 2203

	H.R. 4567 Acid Deposition Control Act	S. 2203 New Clean Air Act
Sulfur Dioxide Reduction Strategy	Two phase reduction strategy: by 1-1-93 utilities must meet a 2.0 lbs. per MMBTU SO_2 emission limit; by 1-1-97 utilities must meet a 1.2 lbs. per MMBTU SO_2 emission limit. Industrial plants must meet a statewide average limit of 1.2 lbs SO_2 per MMBTU by 1-1-97.	After 12-31-91, each fossil-fuel electric power plant is limited to a maximum of 2 years of continued operation unless it meets an SO_2 limit of 0.7 lbs per MMBTU. Older industrial plants become subject to stricter new source standards by 1992.
Nitrogen Dioxide Reduction Strategy	Utility and industrial plants subject to a statewide NO_x emission limit of 0.6 lbs. per MMBTU by 1-1-97. Stricter stanapplied for new plants. Motor vehicles become subject to stricter emission standards.	By 1-1-95 utility and industrial plants are subject to stricter standards to be set by EPA. Motor vehicles become subject to stricter emission standards.
Tax and Subsidy Provisions	Utilities whose residential customers experience a rate increase greater than 10 percent from the control program receive a subsidy financed by a fee on fossil fuel power plants.	None.
Other Provisions	Financial assistance for innovative emission control technologies. Negotiations with Mexico on transboundary air pollution.	Implementation of acid rain monitoring in the western U.S. Negotiations with Canada and Mexico on transboundary air pollution. Study by Treasury Department of tariffs on emissions to reduce air pollution.

Source: Management Information Services, Inc., Impact of Acid Rain Abatement Legislation on States and Electric Utility Company Costs and Rates, 1986.

Exhibit 2

Overview of 1995 Benefits and Costs of Acid Rain Control Legislation
(millions of 1986 dollars)

	Investment Expenditures	Net Sales Created	Net Profits Created	Net Jobs Created	Electric Utility Rate Increase
H.R. 4567	$3,820	$7,482	$681	100,839	2%
S. 2203	$8,434	$13,095	$1,413	194,772	9%

Source: Management Information Services, Inc.

Exhibit 3

Required Sulfur Dioxide Emissions Reductions By State in 1995 Under H.R. 4567 and S. 2203 (thousands of tons)

STATE	1995 Base	Reduction Under H.R. 4567	Reduction Under S. 2203	Percent Reduction Under H.R. 4567	Percent Reduction Under S. 2203
Alabama	569	180	367	32%	64%
Arizona	122	9	38	7	31
Arkansas	101	14	8	14	8
California	25	0	0	0	0
Colorado	92	(2)	5	(2)	5
Connecticut	31	8	2	28	6
Delaware	70	35	51	50	73
Dist. of Col.	6	1	2	19	28
Florida	772	100	298	13	39
Georgia	635	275	439	43	69
	0	0	0	0	0
Illinois	1,142	624	885	55	77
Indiana	1,433	826	1,065	58	74
Iowa	326	145	185	44	57
Kansas	131	0	17	0	13
Kentucky	796	308	456	39	57
Louisiana	93	12	7	14	8
Maine	11	3	6	23	55
Maryland	301	0	139	0	46
Massachusetts	269	74	23	28	9
Michigan	598	196	393	33	66
Minnesota	230	62	113	27	49
Mississippi	135	43	87	32	64
Missouri	1,257	916	1,027	73	82
Montana	71	0	3	0	4
Nebraska	43	0	6	0	13
Nevada	90	11	14	12	16
New Hampshire	53	13	29	23	55
New Jersey	114	10	41	9	36
New Mexico	62	0	0	0	0
New York	499	45	181	9	36
North Carolin	714	333	504	47	71
North Dakota	79	0	14	(1)	17
Ohio	2,017	1,313	1,636	65	81
Oklahoma	142	20	12	14	8
Oregon	5	1	1	14	17
Pennsylvania	1,439	724	1,068	50	74
Rhode Island	5	1	1	28	9
South Carolin	349	162	246	47	71
South Dakota	26	(1)	4	(1)	17
Tennessee	761	458	609	60	80
Texas	586	21	110	4	19
Utah	87	27	11	31	13
Vermont	1	0	1	23	55
Virginia	207	40	60	19	29
Washington	106	14	18	14	17
West Virginia	1,042	622	770	60	74
Wisconsin	746	525	594	70	80
Wyoming	69	(1)	9	(1)	13
TOTAL	18,458	8,167	11,555	44%	63%

Source: Management Information Services, Inc., 116 Fourth Street, S.E., Washington, D.C. 20003

Exhibit 4

Electricity Rate Increases For Each State From H.R. 4567 And From S. 2203

State	Percent Rate Increase	
	H.R. 4567	S.2203
Alabama	1%	7%
Arizona	1%	2%
Arkansas	1%	4%
California	0	1%
Colorado	1%	6%
Connecticut	2%	4%
Delaware	2%	7%
District of Columbia	2%	9%
Florida	2%	6%
Georgia	3%	9%
Idaho	2%	8%
Illinois	3%	9%
Indiana	6%	14%
Iowa	4%	10%
Kansas	0	5%
Kentucky	8%	13%
Louisiana	1%	6%
Maine	0	1%
Maryland	3%	8%
Massachusetts	2%	6%
Michigan	3%	9%
Minnesota	1%	9%
Mississippi	0	9%
Missouri	6%	13%
Montana	0	2%
Nebraska	0	6%
Nevada	0	1%
New Hampshire	2%	2%
New Jersey	1%	5%
New Mexico	0	2%
New York	1%	3%
North Carolina	2%	10%
North Dakota	0	1%
Ohio	7%	17%
Oklahoma	2%	4%
Oregon	0	0
Pennsylvania	6%	13%
Rhode Island	2%	6%
South Carolina	2%	8%
South Dakota	0	1%
Tennessee	4%	11%
Texas	0	3%
Utah	3%	5%
Vermont	0	0
Virginia	2%	11%
Washington	1%	1%
West Virginia	5%	37%
Wisconsin	7%	15%
Wyoming	0	10%
Average, All States	2%	9%

Source: Management Information Services, Inc. Impact of Acid Rain Abatement Legislation on States and Electric Utility Company Costs and Rates, Washington, D.C., 1986.

Exhibit 5

Impact on Rates of Selected Utility Companies of the Two Acid Rain Control Bills

Utility Company	Percent Rate Increase H.R. 4567	Percent Rate Increase S. 2203
Alabama Power Company (Alabama)	5%	16%
Appalachian Power Company (West Virginia)	16%	59%
Arkansas Power and Light (Arkansas)	3%	5%
Associated Electric Cooperative (Missouri)	7%	11%
Basin Electric Power Cooperative (Wyoming)	0	9%
Buckeye Power Company (Ohio)	11%	31%
Central Ill. Public Service Co (Illinois)	17%	25%
Cincinnati Gas and Electric (Ohio)	8%	19%
Columbus and So. Ohio Electric Co. (Ohio)	8%	16%
Dayton Power and Light (Ohio)	9%	24%
Delmarva Power and Light (Delaware)	2%	10%
Detroit Edison Company (Michigan)	5%	14%
Duke Power Company (North Carolina)	3%	14%
Electric Energy Inc. (Illinois)	19%	27%
Georgia Power Company (Georgia)	9%	21%
Gulf Power Company (Florida)	9%	21%
Illinois Power Company (Illinois)	10%	20%
Indiana and Michigan Elec. Company.(Indiana)	7%	18%
Indiana Public Service Company (Indiana)	20%	30%
Iowa Public Service Company (Iowa)	8%	16%

Source: Management Information Services, Inc., 116 Fourth Street, S.E.
Washington, D.C. 20003

Exhibit 5 (continued)

Utility Company	Percent Rate Increase	
	H.R. 4567	S. 2203
Iowa Southern Utilities (Iowa)	18%	24%
Kentucky Power Corporation (Kentucky)	21%	29%
Kentucky Utilities Company (Kentucky)	17%	28%
Louisville Gas & Electric Company (Kentucky)	8%	10%
Minnesota Power and Light (Minnesota)	1%	6%
Minnkota Power Cooperative (North Dakota)	1%	2%
Mississippi Power Company (Mississippi)	3%	22%
Monongahela Power Company (West Virginia)	15%	63%
Montana Power Company (Montana)	1%	3%
Nebraska Public Power (Nebraska)	1%	8%
New England Power Company (Massachusetts)	2%	11%
Northern Indiana Public Service Co. (Indiana)	17%	22%
Ohio Edison Co. (Ohio)	3%	7%
Ohio Power Co. (West Virginia)	8%	40%
Oklahoma Gas and Electric (Oklahoma)	1%	2%
Pacific Power and Light (Wyoming)	1%	16%
Pennsylvania Electric Co. (Pennsylvania)	20%	32%
Pennsylvania Power and Light (Pennsylvania)	9%	26%
Public Service Co. (Colorado)	2%	14%
Public Service Electric and Gas (New Jersey)	1%	9%
Public Service of New Mexico (New Mexico)	1%	1%

Source: Management Information Services, Inc., 116 Fourth Street, S.E.
Washington, D.C. 20003

Exhibit 5 (continued)

Utility Company	Percent Rate Increase H.R. 4567	Percent Rate Increase S. 2203
Rochester Gas and Electric Corp. (New York)	4%	10%
SCANA Corporation (South Carolina)	6%	20%
Seminole Electric Cooperative (Florida)	7%	8%
Tampa Electric Company (Florida)	7%	10%
Tennessee Valley Authority (Tennessee)	7%	23%
Union Electric Company (Missouri)	9%	20%
United Illuminating Company (Connecticut)	2%	5%
Utah Power and Light (Utah)	5%	11%
Virginia Power Company (Virginia)	4%	17%
Wisconsin Public Service Corp. (Wisconsin)	2%	17%
AVERAGE, ALL COMPANIES	2%	9%

Exhibit 6

Net Jobs and Sales Created in Each State by H.R. 4567 and by S. 2203

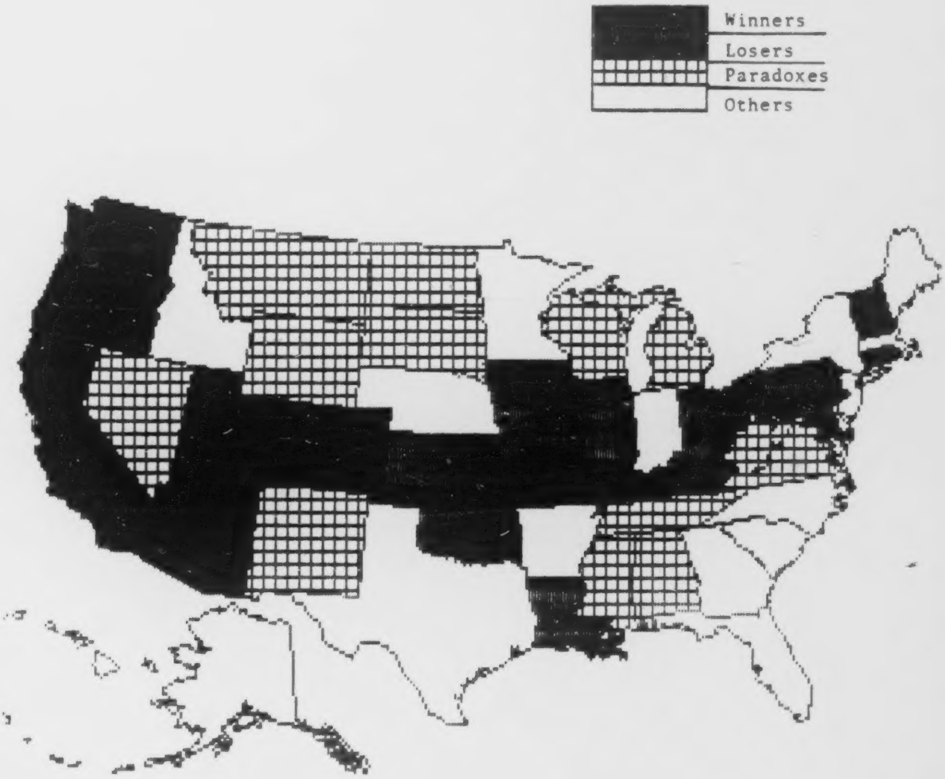
State	H.R. 4567		S. 2203	
	Jobs	Sales*	Jobs	Sales*
Total, All States	100,839	$7,482	194,772	$13,096
Alabama	2,186	$203	7	-$130
Alaska	221	$15	486	$33
Arizona	1,278	$97	3,050	$235
Arkansas	721	$55	1,597	$121
California	14,222	$1,093	31,400	$2,413
Colorado	2,140	$192	13,946	$1,530
Connecticut	2,365	$188	5,234	$416
Delaware	272	$4	584	$43
District of Columbia	443	$29	983	$64
Florida	3,468	$255	7,416	$541
Georgia	2,181	$162	4,466	$328
Hawaii	269	$18	607	$41
Idaho	313	$23	726	$55
Illinois	1,023	-$115	6,423	$252
Indiana	2,091	$125	4,701	$288
Iowa	854	$56	1,934	$130
Kansas	382	$3	1,420	$74
Kentucky	-2,513	-$395	-15,690	-$2,218
Louisiana	1,150	$82	2,457	$182
Maine	369	$28	817	$62
Maryland	1,403	$92	2,983	$196
Massachusetts	3,552	$277	7,860	$614
Michigan	6,336	$514	13,828	$1,120
Minnesota	1,974	$151	4,368	$335
Mississippi	787	$61	1,680	$129
Missouri	1,543	$90	3,628	$226
Montana	-65	-$17	291	$14
Nebraska	557	$41	1,242	$91
Nevada	306	$21	738	$52
New Hampshire	554	$44	1,225	$97
New Jersey	3,538	$266	7,395	$553
New Mexico	352	$25	2,058	$207
New York	8,085	$604	17,649	$1,317
North Carolina	2,429	$185	5,166	$392
North Dakota	151	$10	-303	-$53
Ohio	1,275	-$68	4,815	$80
Oklahoma	915	$60	2,066	$138
Oregon	1,168	$91	2,578	$200
Pennsylvania	-1,516	-$411	1,130	-$368
Rhode Island	471	$37	1,042	$82
South Carolina	1,023	$76	2,163	$161
South Dakota	173	$12	380	$27
Tennessee	2,334	$204	3,355	$236
Texas	6,254	$462	13,857	$1,023
Utah	689	$57	3,904	$412
Vermont	246	$19	544	$43
Virginia	3,978	$388	3,154	$188
Washington	2,017	$156	4,453	$344
West Virginia	13,006	$1,539	-2,010	-$291
Wisconsin	2,305	$181	5,100	$400
Wyoming	1,567	$179	5,777	$668

*Sales in millions of 1986 dollars

Source: Management Information Services, Inc.

Exhibit 7

Summary of State Winners, Losers, and Paradoxes


Winners
Losers
Paradoxes
Others

Source: Management Information Services, Inc.

Statement
on

RETROACTIVE EMISSION CONTROLS

by the
National Association of Manufacturers

In Connection With Hearings of the
Subcommittee on Environmental Protection
Committee on Environment and Public Works
United States Senate

June 25, 1987

Introduction

The National Association of Manufacturers (NAM) strongly opposes the enactment of legislation which would impose massive retroactive emission controls on U.S. industry, which is already spending billions of dollars on controls presently called for by the Clean Air Act.

Justification of these superimposed controls is claimed on the basis of allegations of widespread environmental damage due to manmade emissions acted upon by atmospheric chemistry and transported hundreds of miles before being precipitated. This makes for an issue which cuts many ways across our society.

It is unfortunate that this so-called "acid deposition" debate is not being carried on in the context of a debate on our national energy policy. Coal is our nation's most abundant energy resource. We have enough coal reserves to last hundreds of years, and they are not subject to national security contingencies. More than 50 percent of the nation's electricity is generated by burning coal. This has been referred to as "coal-by-wire" whereby coal comes into the home or factory in a clean usable form with great flexibility to perform many tasks.

Yet, many proposals to deal with the acid deposition phenomenon amount to a "crash program" that would jack up the cost of coal-generated electricity.

By forcing installation in existing plants of presently available air pollution control technology, or by forcing massive switching from high sulfur coal to low sulfur coal, such proposals could deliver a jolt to the economy that would reverberate throughout the United States. This jolt would be felt by residential electric ratepayers, industrial electric ratepayers and purchasers of manufactured goods alike.

This would be a costly approach because such technology, flue gas desulfurization (scrubbing), is very expensive to install and operate, and can be installed only at plants that have available the large amount of space needed for such installations. In addition, scrubbers consume a significant portion of the generating station's power output, thereby lowering production efficiency. Finally, today's typical scrubber systems produce massive amounts of sludge, a nasty solid waste that is difficult to handle and dispose of in compliance with applicable requirements under RCRA.

The limitations of presently available control technology are compounded by the wide diversity of the nation's utility boiler population in terms of boiler design, ages, size, etc., as well as type of coal consumed. Each of these factors can limit the effectiveness of conventional emission reduction methods. This is true also in regard to industrial boilers which some acid deposition proposals would blanket in.

The United States should not bet billions of dollars on something that is not a "sure thing." But the country is being asked to do just that by proposals for a massive "acid deposition" program. One problem is that there are a number of anomalies inconsistent with a simplistic "acid rain" theory. Some acidic lakes can be in close proximity with non-acidic lakes. Another puzzling situation involves New York City's drinking water supplies. This city of 7 million persons draws its drinking water supplies from an upstate watershed with an area of 200,000 square miles. The water is practically perfect, being neither acidic nor alkaline. As measured by the so-called pH scale of 0 for acid to 14 for alkaline, the New York water is 7, or absolutely neutral. Why isn't it affected by acidic deposition? The U.S. Geological Survey and New York are currently carrying out a joint project to try to figure out why. Obviously, the results of this research could be extremely helpful in tailoring an appropriate and effective solution to the problem of some lakes being acidic. In the meantime, New York is doing a brisk business in issuing fishing permits for fishermen who catch lots of fish in the upstate reservoirs.

There is considerable confusion as to what trends, if any, are shown by available data. Some say the data supports a projection of 300 acidified lakes by the 1990s. Others say that the data is too incomplete to justify such a projection. There are also reports of some acidic lakes beginning to improve.

Unfortunately, there will be no way to know if the American people won or lost the multi-billion dollar bet. In football, there is a field with 100 yards marked off on it, and you score a touchdown if you cross the 100 yard marker. By way of contrast, all rain, no matter where, no matter when, measures on the acidic side of the pH scale. Consequently, the dream of stamping out "acid rain" is as illusory as King Canute's idea that he could turn back the ocean waves by using a whip on them.

Emissions of sulfur dioxide have been decreasing steadily and substantially in recent years, 28 percent over the last decade while coal usage has increased by 64 percent.

There is no evident reason why this trend should not continue. How much of an accelerated decrease would be necessary to "cure" the "acid rain" problem? No one really knows. If billion of dollars are spent and there is no "cure," there is no refund, and the Congress cannot be sued for legislative malpractice. It is not enough to say, "We did 'something' about acid rain." Is it too much to hope that Congress would say, "We did the '*right* thing' about acid rain"?

Costs

Costs of compliance by the regulated community have been studied and reported on by various governmental and non-governmental organizations. The figures vary widely, but they all add up to billions of dollars. S. 321 states a goal of achieving by January 1, 19[illegible] a reduction of annual emissions of sulfur dioxide of 12 million tons and in annual emission of oxides of nitrogen of 4 million tons, from the total actual annual level of such emissions between January 1, 1980 and December 31, 1980. When one realizes that it will cost many hundreds of dollars per each one ton to achieve such a reduction, one gets an idea of the dimensions of the costs involved.

Many people have the conception that S. 321 is just a bill to regulate electric utility companies. However, the bill makes clear that its limitations apply to "all major stationary sources that are fossil fuel fired steam generating units, including both electric utility *and nonutility units*, that were in operation during any part of calendar year 1980" (Underlining supplied). In fact, S. 321 could impact on small manufacturers as well as larger manufacturers, because it commands each State to adopt "such additional enforceable measures, including, but not limited to, controls on *other stationary sources* in such State, as are necessary'' to achieve that State's fraction of the total national mandated reduction. (Underlining supplied.) It is provided that ''Such additional enforceable measures shall include emission limitations and schedules of compliance for such sources.'' This throws the Clean Air Act out the window as far as sulfur dioxide and oxides of nitrogen are concerned, because it completely departs from the statutory structure of State implementation plans designed to achieve National Ambient Air Quality Standards (NAAQS).

The average industrial boiler is one-thirtyfifth the size of the average utility boiler. The control costs per ton of SO_2 removed range from three to four times higher for industrial boilers. S. 321 contains no cost effective size threshold. Industry would be hit two ways, by much higher costs for electricity and by heavy costs imposed directly on its own operations. At a time of huge trade deficits, it is particularly unwise to burden our economy with additional production costs of such magnitude. Electricity is the life blood of manufacturing industry, which is the single largest consumer of electricity. S. 321 would not only increase the capital and operating costs of generating electricity, but also contemplates a tax on its production by ordering a report by the Secretary of the Treasury on ''a study, together with appropriate legislative proposals, on a system of tariffs on emissions adequate to encourage reductions in emissions of precursors of acid deposition and other forms of environmental pollution.'' The phrase ''system of tariffs'' is obviously a euphemism for ''emissions tax'' and the fact that it would apply to ''other forms of environmental pollution'' means that it would apply not only to the production of electricity but also to the production of manufactured goods and service operations such as dry cleaning, hospitals, and gasoline stations. We do not believe that such a tax study properly belongs in any legislation on acid deposition.

The annual costs of just the program explicitly set forth in S. 321 have been estimated anywhere from $3 billion per year to $10 billion per year, and the total costs somewhere above $100 billion, with no guarantee of even limited success of this costly experiment. Obviously, if it costs the United States billions of dollars more to produce the same amount of goods, this will be a severe handicap in competition in the world market.

Alternatives

There are available alternative programs which have greater chance of success at only a small fraction of the cost of the program set forth in S. 321.

For example, for more than a decade, limestone has been added to Swedish lakes to neutralize acidity. Swedish fisheries biologists are now confident that liming can be used as a tool to support fish populations. The program currently involves liming 6,000 lakes. The Swedes' program is successful. Lakes are being limed on a frequency of from 1 to 3.5 years at dosages up to 2400 tons of lime, as calcium oxide. The annual budget for this entire liming program is about $12 million. The treated lakes now support populations of walleye, northern pike, muskellunge, lake trout, and smallmouth bass. All of these species, except smallmouth bass, are successful at reproduction. By liming the headwater lakes of two river drainage basins, native salmon returned to the rivers. Liming is well beyond the research stage in Sweden. It is a viable working fisheries management tool.

Continuation of the present U.S. program under the Clean Air Act is an alternative that has a proven track record. Between 1973 and 1982, SO_2 emissions went down 28 percent. Between 1975 and 1984, ambient air concentrations of SO_2 dropped by about one-third while coal usage was up by 64 percent. Progress will continue to be made as New Source Performance Standards (NSPS) are applied to new plants. This has been an orderly program. An effort to accelerate this process with a crash program involving heavy costs and associated adverse long term economic impacts would be counter-productive for our country.

Congress very wisely has given enthusiastic support to a national clean coal technology program. This program has the potential to control large amounts of the SO_2 and NO_x released from coal-fired power plants; return economic benefits to American consumers by permitting clean energy to be generated without financially constraining capital investments for environmental controls; permit the continued use of high-sulfur coals, thereby avoiding the social disruptions associated with massive coal switching; and make coal an environmentally attractive fuel for the future, a fuel for national energy security, and a fuel for continued economic growth.

Congress should at least wait a little while longer for the results of the National Acid Precipitation Assessment Program (NAPAP) which Congress established about 10 years ago and is concluding its work.

We believe that clean coal innovative technology is the way to go rather than a superstructure of more Federally dictated regulation. Therefore, we respectully urge the Subcommittee on Environmental Protection to not report S. 321. Thank you for this opportunity to present our views.

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July 22, 1987

The Honorable George J. Mitchell
Chairman, Environmental Protection Subcommittee
Committee on Environment and Public Works
SD 458 Dirksen Senate Office Building
Washington, D. C. 20510

Dear Mr. Chairman:

I am writing on behalf of the Specialty Equipment Market Association (SEMA) with regard to the proposed amendments to the Clean Air Act which are currently being considered by the Subcommittee on Environmental Protection of the Senate Committee on Environment and Public Works. SEMA is an association of nearly 1900 manufacturers and distributors of specialty equipment for motor vehicles. As such, SEMA is part of the automotive aftermarket and is concerned about certain measures which are part of the Committee bill.

To begin, as we have stated in earlier statements to the Committee on Environment and Public Works, we are concerned that in an effort to improve the emission performance of in-use vehicle, there is frequently an attempt to increase the stringency of the emission standards or increase the duration of the warranty period. We have found through numerous studies that in-use vehicles are currently incapable of maintaining the required standards for even a portion of the currently defined useful life. We believe that efforts to increase stringency of the emission standards will result in penalties in fuel economy and driveability. This would likely have the direct result of increased tampering to improve driveability and fuel economy. It would seem, therefore, that the effort which should be pursued is that of attempting to increase the durability of the emission control systems.

We are not convinced that the most effective means of increasing the durability of the emission control system is increasing the length of the performance warranty. In fact, it would not appear that the new vehicle manufacturers are induced to build durability into the emission control system as a result of their obligations under the performance warranty. We believe that the new vehicle manufacturers see the performance warranty as a marketing device and likely see little reason to provide for claims on the basis of the performance warranty which has already been paid for by the consumer when he purchased the vehicle. The only real practical effect of the performance warranty is to direct the consumer to the new vehicle dealer and away from the independent automotive aftermarket for the duration of the warranty period.

When we judge the rates at which in-use vehicles fail to comply with in-use standards and the low instances of warranty claims, it would appear that the most effective means of insuring improvements in air quality without increased burdens on the automotive aftermarket and the consumer is an effective emissions recall program. We believe that the advent of significant recall programs will provide the inducement to the vehicle manufacturers to design and develop emission systems which will maintain their effectiveness for longer periods of time. Where a system does fail, despite efforts to design in durability, the recall will insure that vehicles are brought back into compliance. Additionally, the recall program will have beneficial effects throughout the country rather than only in the various transportation control regions. We strongly recommend, therefore, that the length of the useful life of the vehicle remain as it is or be reduced and not increased to 10 years or 100,000 miles. Concurrently, the Committee should consider language which directs the Environmental Protection Agency to carry out existing law by more forcefully pursuing the recall authority which is contained in the Clean Air Act.

With regard to the deliberation of the Committee concering the enhancement of the provisions of the law relating to inspection and maintainance programs, we would only suggest that the Committee make clear in their Report and other interpretative documents that the purpose of the inspection and maintenance program is to detect vehicles which fail to meet emission levels, to detect fuel switching and to detect instances where persons have removed or disabled elements of the emission control system. The proposals would require inspectors to undertake an inspection of the emission control system. In this regard, we would recommend that the Committee make clear that the inspection which is to be undertaken is of the parts which have been installed for the purpose of emission control. This is currently the policy of the EPA. The inspection should be limited to the catalytic converter, the fuel inlet restrictor, the air injection systems, the exhaust gas recirculation valve, the positive crankcase ventilation valve and evaporative emission controls. These are, in fact, the parts which have been recommended for inspection by the EPA. Expanding the list would have the effect of increasing significantly the complexity of the inspection and the likelihood that it will not be undertaken in a proper fashion and it will likely have the effect of causing additional discrimination against replacement parts without any justification.

I would also like to comment upon the provisions which are being considered with regard to the amendment of Section 203 with regard to tampering. As we have stated with regard to this language since it was initially considered in 1984, we are fully supportive of efforts to prevent the removal, disconnection or disablement of emission control devices. We believe that the law should provide sufficient authority to prevent persons from undertaking those acts, including practices which involve the installation of products which require the disconnection or removal of emission control devices. Such products would include those which are intended to defeat the emission control system, such as bypass devices which replace catalytic converters and fuel filler restriction by-pass devices. We believe that it is important to insure that the intent of the Committee is understood as being limited to this goal. It should not be construed as providing authority to the EPA to require all parts manufacturers to undertake the Federal Test Procedure on their parts before such parts could be installed on vehicles to determine with precision the potential impact of such parts on the emissions characteristics of the vehicle.

We hope that our comments with regard to the various amendments will be helpful to the Committee and we would be pleased to provide whatever other information we might have which would be of use to you.

Sincerely,

JOHN RUSSELL DEANE III

II

100TH CONGRESS
1ST SESSION

S. 300

Entitled the "New Clean Air Act".

IN THE SENATE OF THE UNITED STATES

JANUARY 12, 1987

Mr. STAFFORD (for himelf, Mr. KENNEDY, Mr. BAUCUS, Mr. DURENBERGER, Mr. CHAFEE, Mr. CRANSTON, Mr. LEAHY, Mr. KASTEN, Mr. WEICKER, and Mr. MOYNIHAN) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

---

A BILL

Entitled the "New Clean Air Act".

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. This Act may be cited as the "New Clean Air Act".

STATIONARY SOURCE CONTROLS

SEC. 2. (a) Section 111(a)(2) of the Clean Air Act is amended by adding the following new sentence: "The term 'new source' also includes any stationary source of emissions of sulfur or oxides of nitrogen within a category to which regulations under this section apply, on which such source construction has been completed for thirty years or more, beginning on January 1, 1991.".

(b) Part A of title I on the Clean Air Act is amended by adding the following new section:

"ACID DEPOSITION CONTROLS

"SEC. 129. (a) After December 31, 1990, each fossil-fuel-burning electric generating facility which is a major stationary source of emissions of sulphur dioxide shall operate for a total of not more than 10,000 hours, notwithstanding the remaining useful life of such source, except as follows:

"(1) in the case of any such source attaining an emission rate not exceeding 1.50 pounds of sulphur dioxide per million British thermal units of heat input (averaged on a monthly basis), such source may operate for a total of not more than 30,000 hours;

"(2) in the case of any such source attaining an emission rate not exceeding 0.90 pounds of sulphur dioxide per million British thermal units of heat input (averaged on a monthly basis), such source shall have no limit on hours of operation or other restrictions on operation in hours of peak demand under this subsection.

"(b) For purposes of determining compliance with subsection (a) and other provisions of this title, emission rates of fossil-fuel-burning electric generating facilities shall be based on measured concentrations of pollutants in post-combustion stack gases.

"(c) Not later than January 1, 1995, each major stationary source of emissions of oxides of nitrogen shall attain the degree of emission reduction attained by technology demonstrated to be available for application to existing sources, in any member country of the Organization for Economic Cooperation and Development. Not later than January 1, 1989, and no less often than every five years thereafter, the Administrator shall publish guidance documents identifying what degree of emission reduction has been demonstrated for various categories of sources.".

(d) Section 111 of the Clean Air Act is amended by adding the following new subsection:

"(k) Not later than January 1, 1989, the Administrator shall promulgate standards of performance for oil shale production and processing facilities, synthetic fuel production facilities, and other categories of major energy-production sources. Such standards of performance shall at a minimum control emissions of hydrocarbons, sulfur dioxide and oxides of nitrogen, and, notwithstanding subsection (a)(2), shall apply to any such facility on which construction or modification is commenced after January 1, 1986.".

(e) Section 111(a)(4) of the Clean Air Act is amended by inserting immediately after the phrase "method of operation" the following: "(including, but not limited to, a change in the method of combustion or primary fuel)".

MOBILE SOURCE-RELATED CONTROLS

SEC. 3. (a)(1) Part D of title I of the Clean Air Act is amended by adding at the end thereof the following new section:

"SEC. 179. In every air quality control region that fails to attain the national primary ambient air quality standard for ozone by January 1, 1988, the Administrator shall require the use, within two years of such date, of systems for gasoline vapor recovery of hydrocarbon emissions emanating from the fueling of motor vehicles.".

(2) Section 324 of the Clean Air Act is amended by striking "50,000" each place it appears and inserting in lieu thereof "10,000"; by striking, in subsection (a), all after "gallons." through the end of the subsection; and by striking "324" in subsection (c) and inserting in lieu thereof "323".

(b) Section 202(a)(6) of the Clean Air Act is amended to read as follows:

> "(6) Not later than 6 months after the enactment of this paragraph, the Administrator shall promulgate regulations requiring the use of onboard hydrocarbon control technology by vehicles manufactured for any model year after model year 1988.".

(c) Section 202(b)(1)(A) of the Clean Air Act is amended by adding the following at the end thereof: "The regulations under subsection (a) applicable to emissions of hydrocarbons from light-duty vehicles and engines manufactured during and after model year 1992 shall contain standards which provide that such emissions may not exceed 0.25 gram per vehicle mile.".

(d) Section 202(b)(1)(B) of the Clean Air Act is amended by adding at the end thereof the following new sentences: "The regulations under subsection (a) applicable to emissions of oxides of nitrogen from light-duty vehicles and engines manufactured during and after model year 1990 shall contain standards which provide that such emissions may not exceed 0.4 gram per vehicle mile.".

(e) Section 202(b)(1) of the Clean Air Act is amended by adding the following new subparagraph:

"(D) The Administrator shall promulgate regulations under subsection (a) applicable to emissions of particulates from light-duty vehicles and engines manufactured during and after model year 1991, and such regulations shall contain standards which provide that such emissions may not exceed 0.08 gram per vehicle mile.".

(f) Section 202(a)(3) of the Clean Air Act is amended by inserting after subparagraph (E) the following new subparagraphs and redesignating succeeding subparagraphs accordingly:

"(F) Regulations under paragraph (1) applicable to emissions of oxides of nitrogen from heavy duty vehicles and engines shall contain standards that provide that such emissions shall not exceed 4.0 grams per brake horsepower-hour for vehicles manufactured during and after model year 1991 and, for diesel vehicles and engines, that such emissions shall not exceed 1.7 grams per brake horsepower-hour for vehicles manufactured during and after model year 1995. Regulations applicable to emissions of particulates from heavy-duty diesel vehicles and engines shall require that such emissions may not exceed 0.1 gram per brake horsepower-hour, beginning in model year 1991 with respect to buses, and in model year 1992 with respect to other heavy-duty diesel vehicles and engines.

"(G) Regulations under paragraph (1) applicable to emissions from light-duty trucks and engines manufactured during and after model year 1990 shall contain standards which provide that such emissions may not exceed 0.5 gram per vehicle mile of oxides of nitrogen, 0.5 gram per vehicle mile of hydrocarbons, 0.08 gram per vehicle mile of particulates, and 5.0 grams per vehicle mile of carbon monoxide. For the purposes of this subparagraph, the terms 'light-duty truck' and 'light-duty truck and engine' mean any motor vehicle (including the engine thereof) with a gross vehicle weight (as determined under regulations promulgated by the

Administrator) of 8,500 pounds or less and a curb weight of 6,000 pounds or less (as determined under regulations promulgated by the Administrator) and which—

"(i) is designed primarily for purposes of transportation of property or is a derivation of such a vehicle,

"(ii) is designed primarily for transportation of persons and has a capacity of more than 12 persons, or

"(iii) has special features enabling offstreet or off-highway operation and use.".

(f) Section 202(d)(1) of the Clean Air Act is amended by substituting for "five years or of fifty thousand" the following: "ten years or of one hundred thousand".

(g) Section 211 of the Clean Air Act is amended by adding the following new subsections:

"(h) The Administrator shall promulgate regulations under this subsection requiring that the sulfur content of any motor vehicle diesel fuel shall not exceed 0.05 percent (by weight). After January 1, 1989, no manufacturer or importer of motor vehicle diesel fuel may sell, offer for sale, or introduce into commerce any fuel which does not comply with such regulations. In the case of a State standard which is more stringent than the standard under this subsection, section 211(c)(4)(A) shall not apply to regulations regarding the sulfur content of any motor vehicle diesel fuel.

"(i) The Administrator shall promulgate regulations under this subsection requiring that the Reid vapor pressure of gasoline shall not exceed 9.0 pounds per square inch. After January 1, 1989, no manufacturer or importer of gasoline may sell, offer for sale, or introduce into commerce any fuel which does not comply with such regulations.".

(h)(1) Section 211(d) of the Clean Air Act is amended to read as follows:

"(d)(1) Any person who violates subsection (a) or (f) or the regulations prescribed under subsection (c), (h) or (i) or who fails to furnish any information required by the Administrator under subsection (b) shall be subject to a civil penalty of not more than $10,000 for each and every day of such violation. Such civil penalty shall be assessed by the Administrator by an order made on the record after opportunity for a hearing. In connection with any proceeding under this section the presiding officer may issue subpoénas for the attendance and testimony of witnesses and the production of papers, books, and documents.

"(2) In determining the amount of a civil penalty, the Administrator shall take into account the gravity of the violation, the size of the violator's business, the violator's history of compliance, action taken to remedy the violation, and the effect of the penalty on the violator's ability to continue in business.

"(3) If a person fails to pay a civil penalty assessed under this subsection—

"(A) after the order making the assessment has become a final order and if such person does not file a petition for judicial review of the order in accordance with section 307, or

"(B) after a court in any action brought for judicial review has entered a final judgment in favor of the Administrator or the action has otherwise been terminated if such person has filed a petition for review under section 307, the Attorney General shall recover the amount assessed (plus interest from the date of the expiration of sixty days from the date of the order, or from the date of such final judgment, as the case may be) in an action brought in any appropriate district court for the United States. In such an action, the validity, amount, and appropriateness of such penalty shall not be subject to review.".

(2) Section 211(c) is amended by adding a new paragraph as follows:

"(5) Regulations under this subsection shall prohibit any person from introducing, or causing or allowing the introduction, of a regulated fuel or fuel additive into a motor vehicle not designed for such fuel or fuel additive.".

(i) After January 1, 1989, a vehicle emission control inspection and maintenance program required by section 172(b)(11)(B) of the Clean Air Act or, in areas where there is no such program operating, an inspection program required by applicable vehicle safety laws of a State, shall require emissions testing or direct inspection of components of vehicle emissions control systems (including inspection for evidence of misfueling) and where such components have been rendered inoperative, the replacement or repair of such components for systems or components related to the control of emissions of oxides of nitrogen.

MISCELLANEOUS PROVISIONS

SEC. 4. (a) Section 114 of the Clean Air Act is amended by adding the following new subsection:

"(e) No later than July 1, 1988, the Administrator shall implement (1) a system for monitoring dry deposition of acidic pollutants, including, in particular, monitoring in the Rocky Mountain region and other Western States, and (2) a system for monitoring lake chemistry and biological and chemical factors of watersheds, soils and forests in portions of the Rocky Mountain region and other Western States likely to be sensitive to acid deposition.".

(b)(1) Section 126 of the Clean Air Act is amended by adding the following new subsection:

"(d) For the purpose of this section, it shall be deemed to be a violation of the prohibition of section 110(a)(2)(E)(i) if emissions of any air pollutant causes or contributes to a violation of a water quality standard established by a State under section 303 of the Clean Water Act.".

(2) Section 115 of the Clean Air Act is amended by adding the following new subsection:

"(e) For the purpose of this section, emissions of an air pollutant shall be deemed to cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare in a foreign country if such emission causes or contributes to a violation of a water quality standard or requirement established by such foreign country.".

(c)(1) Not later than January 1, 1988, the President shall institute negotiations with Canada and Mexico for the purpose of concluding a tripartite agreement—

(A) to minimize projected and existing levels of air pollution;

(B) to create an institutional framework to control sources of transboundary air pollution;

(C) to establish a North American air quality monitoring network;

(D) to encourage increased research and dissemination of information on air pollution control strategies; and

(E) to develop uniform minimum levels of protection for public health and the environment.

(2) The President shall undertake to enter into international agreements to apply uniform standards of performance for the control of the emissions of air pollutants. For this purpose the President shall negotiate multilateral treaties, conventions, resolutions, or other agreements, and formulate, present, or support proposals at the United Nations and other appropriate international forums.

(d) Not later than January 1, 1989, the Secretary of the Treasury, after consultation with the Administrator of the Environmental Protection Agency, shall submit to the Committee on Environment and Public Works and the Committee on Finance of the United States Senate and the Committee on Energy and Commerce, the Committee on Public Works and Transportation, and the Committee on Ways and Means of the United States House of Representatives, a study, together with appropriate legislative proposals, on a system of tariffs on emissions adequate to encourage reductions in emissions of precursors of acid deposition and other forms of environmental pollution.

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II

100TH CONGRESS
1ST SESSION

S. 321

To amend the Clean Air Act to better protect against interstate transport of pollutants, to control existing and new sources of acid deposition, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JANUARY 16, 1987

Mr. MITCHELL (for himself, Mr. STAFFORD, Mr. CHAFEE, Mr. MOYNIHAN, Mr. BAUCUS, Mr. LAUTENBERG, Mr. DURENBERGER, Mr. LEAHY, Mr. KENNEDY, Mr. DODD, Mr. PELL, Mr. KASTEN, and Mr. RUDMAN) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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A BILL

To amend the Clean Air Act to better protect against interstate transport of pollutants, to control existing and new sources of acid deposition, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Acid Deposition Control Act of 1987".

SEC. 2. Title I of the Clean Air Act is amended by adding the following new part:

"PART E—INTERSTATE TRANSPORTATION AND ACID PRECURSOR REDUCTION

"FINDINGS AND PURPOSES

"SEC. 180. (a) The Congress finds that—

"(1) the long-range transport of pollutants and their transformation products is an interstate and international problem;

"(2) current levels of emissions of air pollutants from existing sources as well as increased emissions from new and existing sources threaten public health and welfare and the environment in States and countries other than those in which emitted;

"(3) reduction of total regional atmospheric loading of pollutants such as sulfur oxides and nitrogen oxides will enhance protection of public health and welfare and the environment;

"(4) more effective regulation of the interstate transport of air pollutants is needed in order to protect the health and welfare of the citizens of downwind States and the economic growth opportunities of downwind States; and

"(5) in particular—

"(A) the deposition of acid compounds from the atmosphere is causing and contributing to widespread long-term ecosystem degradation;

"(B) the principal source of the acid compounds in the atmosphere, and their precursors, is the combustion of fossil fuels;

"(C) the problem of acid deposition is of national and international significance and cannot be addressed adequately without Federal intervention;

"(D) control strategies and technology for precursors to acid deposition exist now that are economically feasible; and

"(E) current and future generations of Americans will be more adversely affected by delayed action, so that efforts to remedy the problem should commence now.

"(b) The purposes of this part are to:

"(1) protect public health and welfare and the environment from any actual or potential adverse effect caused by ambient concentrations or deposition of air pollutants, including the products of atmospheric transformation of pollutants; and

"(2) preserve the rights and reponsibilities of States to protect the public health and welfare and the environment of their citizens from air pollution originating in other States.

"GOAL OF PART E

"SEC. 181. Not later than January 1, 1996, there shall be achieved a reduction in annual emissions of sulfur dioxide of 12,000,000 tons and in annual emissions of oxides of nitrogen of 4,000,000 tons, from the total actual annual level of such emissions between January 1, 1980, and December 31, 1980.

"ACID PRECURSOR CONTROLS

"SEC. 182. (a) Not later than January 1, 1996, each State shall achieve within its borders an annual Statewide average rate of emissions of—

"(1) sulfur dioxide not greater than 0.9 pounds per million British thermal units of heat input, and

"(2) oxides of nitrogen not greater than that determined by the Administrator to be equivalent to 0.6 pounds per million British thermal units of heat input on a three-hour average,

for all major stationary sources that are fossil fuel fired steam generating units, including both electric utility and nonutility units, that were in operation during any part of calendar year 1980.

"(b)(1) Not later than two years after the date of enactment of the Acid Deposition Control Act of 1987, each State shall adopt—

"(A) enforceable measures adequate to achieve the reduction in emissions required by subsection (a), applicable to each source subject to such subsection, including emission limitations and schedules of compliance for such sources and additional means of emission reduction in accordance with section 184 of this Act; and

"(B) such additional enforceable measures, including, but not limited to, controls on other stationary sources in such State, as are necessary, taking into account the requirements of subsection (a), section 110, section 111, and title II of this Act, to achieve within its borders a reduction in annual emissions of (i) sulfur dioxide equal to that fraction of 12,000,000 tons that is the ratio of all the actual utility emissions in such State in excess of 0.9 pounds of sulfur dioxide per million British thermal units of heat input to the total in all States of all the actual utility emissions in excess of 0.9 pounds of sulfur dioxide per million British thermal units of heat input, and (ii) oxides of nitrogen equal to that fraction of 4,000,000 tons that is the ratio of all of the estimated actual emissions of oxides of nitrogen in such State to the total in all States of all the estimated actual emissions of oxides of nitrogen. Such additional enforceable measures shall include emission limitations and schedules of compliance for such sources.

The Governor of such State shall submit such measures to the Administrator for review in accordance with paragraph (2) of this subsection.

"(2) The Administrator shall approve within six months such measures submitted under paragraph (1) of this subsection if the Administrator finds that such measures (A) contain enforceable requirements for continuous emission reduction, including for each source limitations on emission rate, assumed rates of operation, and limitations on aggregate annual emissions consistent with such assumed rates of operation, (B) contain requirements for the installation and operation of continuous emission monitoring by the source and additional monitoring by enforcement agencies to assure that the emission limitations are being met, and (C) are adequate to achieve the reduction in emissions for such State required by this section within the time specified.

"(3) Each emission limitation, schedule for compliance or other measure adopted and approved under this section shall be deemed a requirement of the State implementation plan approved or promulgated for such State under section 110 of this Act.

"(4)(A) Not later than three years after the enactment of this part, the owner or operator of each stationary source subject to an emission limitation under this part shall certify to the State the means by which such source intends to comply with such emission limitation, identifying the extent to which it will rely on fuel substitution, installation of a system of continuous technological emission reduction, retirement of existing facilities, implementation of enforceable energy conservation measures, or a combination thereof.

"(B) Not later than five years after the enactment of this part, each stationary source (i) for which certification is not provided within the time required by subparagraph (A), or (ii) that certifies that it will comply with an emission limitation established under this subsection or section 183 in whole or in part through the use of fuel substitution, shall be in compliance with such emission limitation.

"(C) Not later than five years after the enactment of this part, each major stationary source that certifies pursuant to this section that it will comply with an emission limitation established under this subsection or section 183 through the installation of technological system of continuous emission reduction, the retirement of existing facilities, the implementation of enforceable energy conservation measures, or a combination thereof, shall enter into binding contractual commitments to acquire, install, construct, or retire such system or facilities, or provide such services as needed to implement any energy conservation measure.

"(D) Not later than January 1, 1996, each stationary source subject to an emission limitation under this part shall be in compliance with such emission limitation.

"(E) No major stationary source in operation before January 1, 1981, or which began operation after January 1, 1981, shall increase its actual rate of emissions of sulfur dioxide or oxides of nitrogen over that experienced by such source during the calendar year 1980, unless there has been identified for such source in accordance with section 184 of this Act a simultaneous net reduction in emissions of such pollutant at one or more points in excess of the proposed increase in emission rate, and not otherwise required by a State implementation plan under section 110 or 111 of this Act or under this section or section 183 of this part.

"DEFAULT REQUIREMENTS AND SPECIAL RULE FOR GROWTH

"SEC. 183. (a) In the case of any State that does not have enforceable measures in accordance with section 182(b)(1) approved by the Administrator within two years and six months after the date of enactment of the Acid Deposition Control Act of 1987, the owner or operator of each fossil fuel fired steam generating unit in such State which is a major stationary source of emissions of sulfur dioxide shall comply not later than January 1, 1996, with an emission limitation for each such facility not greater than 0.9 pounds of sulfur dioxide per million British thermal units of heat input on a monthly average.

"(b)(1) On and after January 1, 1996, sources of sulfur dioxide in each State shall comply with the requirements of either paragraph (2)(A) or paragraph (2)(B) of this subsection. Each State shall determine which requirements shall apply within such State, and submit enforceable measures to implement such requirements, as part of the enforceable measures adopted and submitted pursuant to section 182(b), not later than two years after the enactment of this part.

"(2)(A) Any fossil fuel fired steam generating unit (including any utility or nonutility unit) on which construction has been completed for thirty years or more shall comply with an emission limitation not greater than 0.9 pounds of sulfur dioxide per million British thermal units of heat input on a monthly average. This subsection shall take effect January 1, 1996.

"(B) On and after January 1, 1996, aggregate statewide emissions of sulfur dioxide shall not exceed an aggregate emissions ceiling for such State, equal to the actual annual emissions in such State between January 1, 1980, and December 31, 1980, minus the reduction in annual emissions determined under section 182(b)(1)(B)(i). For the purpose of such aggregate emissions ceiling, when a fossil fuel fired electric utility steam generating unit permanently ceases operation, such ceiling shall be reduced by an amount equal to the annual average emissions of sulfur dioxide from such unit in the preceeding five year period.

"ENFORCEABLE EMISSION REDUCTION PROGRAMS

"SEC. 184. (a) For the purpose of attaining emission reductions required by section 182 of this Act or maintaining the limitation on emissions required by subsection (b)(4)(E) of such section, the following methods or programs for net emissions reduction may be used, in addition to enforceable continuous emission reduction measures, by a State or the owner or operator of a source, if emission limitations under such methods or programs are enforceable by the Federal Government, States other than those in which the emissions occur, and citizens under section 304 of this Act:

"(1) programs for energy conservation where enforceable reductions in emissions can be identified with such programs;

"(2) least emissions dispatch to meet electric generating demand at existing generating capacity;

"(3) retirement of major stationary sources at an earlier date than provided in schedules on file with the Federal Energy Regulatory Commission, the Internal Revenue Service, or State utility regulatory agencies;

"(4) trading of emission reduction requirements and actual reductions on a State or substate basis, for which States and the Administrator are authorized to establish emission banks or brokerage institutions to facilitate such trading; and

"(5) precombustion cleaning of fuels.

"(b) It shall be a first priority under this part to achieve the reductions in emissions required by section 182 through conservation of electricity. If the Governor of any State certifies to the Administrator, as part of the measures submitted under section 182(b), that a program encouraging or requiring the conservation of electricity will be implemented in such State and that such program will result in a reduction in emissions of sulfur dioxide or oxides of nitrogen, then such State may calculate the extent of the emissions reduction accomplished by such program of conservation, and may comply with the requirements of sections 181 and 182 by substituting such emissions reduction for a portion of the total emissions reductions attributable to the emissions rate limitations of section 182(a). Such emissions rate limitations may be adjusted to reflect such substitution.

"(c) Interstate trading of emission reduction requirements and actual reductions or limitations on emissions under section 182(b)(4)(E) shall not be allowed under this part.".

SIP AMENDMENT

SEC. 3. Section 110(a)(2)(E) of the Clean Air Act is amended by inserting after "visibility," the following: "or (III) contribute to atmospheric loadings of pollutants or their transformation products which may reasonably be anticipated to cause or contribute to an adverse effect on public health or welfare or the environment in any other State or foreign country".

SMELTER CONTROLS

SEC. 4. Section 119 of the Clean Air Act is hereby repealed, and any primary nonferrous smelter order issued under such section shall terminate as of January 1, 1988. Any primary nonferrous smelter to which such an order was issued shall be in compliance with the applicable emission limitation or standard no later than January 1, 1988. No order under section 113 or other provision of the Clean Air Act, nor the order of any court, shall permit any extension or delay in such compliance beyond Janaury 1, 1988.

MOBILE SOURCE CONTROLS

SEC. 5. (a). Section 202(b)(1)(B) of the Clean Air Act is amended by adding at the end thereof the following new sentence: "The regulations under subsection (a) applicable to emissions of oxides of nitrogen from light-duty vehicles and engines manufactured during and after model year 1990 shall contain standards which provide that such emissions may not exceed 0.4 grams per vehicle mile.".

(b) Section 202(a)(3) of the Clean Air Act is amended by inserting after subparagraph (E) the following new subparagraphs and redesignating succeeding subparagraphs accordingly:

"(F) Regulations under paragraph (1) applicable to emissions from heavy-duty vehicles and engines manufactured during and after model year 1991, shall contain standards which provide that such emissions may not exceed 4.0 grams per brake horsepower-hour of oxides of ntirogen. Regulations under paragraph (1) applicable to heavy-duty vehicles and engines manufactured during and after model year 1995 shall contain standards which provide that such emissions may not exceed 1.7 grams per brake horsepower-hour of oxides of nitrogen.

"(G) Regulations under paragraph (1) applicable to emissions from light-duty trucks and engines manufactured during and after model year 1990 shall contain standards which provide that such emissions may not exceed 0.5 gram per vehicle mile of oxides of nitrogen. For the purposes of this subparagraph, the terms light-duty truck and engine mean any motor vehicle (including the engine thereof) with a gross vehicle weight (as determined under regulations promulgated by the Administrator) of 8,500 pounds or less and a curb weight of 6,000 pounds or less as determined under regulations promulgated by the Administrator) and which—

"(i) is designed primarily for purposes of transportation of property or is a derivation of such a vehicle,

"(ii) is designed primarily for transportation of persons and has a capacity of more than 12 persons, or "(iii) has special features enabling off-street or off-highway operation and use.".

(c) Section 202(d)(1) of the Clean Air Act is amended by inserting after "occurs" the following: ", expect that with respect to any catalytic converter or other component designed for emission control, for the purposes of section 207(a)(3), useful life shall be a period of use of ten years or of one hundred thousand miles, whichever first occurs".

(d) Section 206(b)(2)(A) of the Clean Air Act is amended by adding the following new clause:

"(iii) A certificate of conformity shall be suspended or revoked under clause (i) if less than 90 per centum of the new vehicle or engines tested in any sample or sampling period conform with the regulations with respect to which the certificate of conformity was issued.".

(e) After January 1, 1988, a vehicle emission control inspection and maintenance program required by section 172(b)(11)(B) of the Clean Air Act or, in areas where there is no such program operating, any inspection program required by applicable vehicle safety laws of a State, shall require emissions testing or direct inspection of components of vehicle emissions control systems (including evidence of misfueling) and, where such components have been rendered inoperative, the replacement or repair of such components, for systems or components related to the control of emissions of oxides of nitrogen.

(f) Section 211 of the Clean Air Act is amended by adding the following new subsection:

"(h) After July 1, 1988, the sale of diesel fuel for use in motor vehicles, which fuel has a sulfur content in excess of the average sulfur content of gasoline sold in the United States during 1985, shall be prohibited. No later than January 1, 1988, the Administrator shall publish a determination of the allowable level of sulfur in diesel fuel under this subsection. Unless and until such determination is published, such allowable level of sulfur shall be 0.05 percent by weight.".

INTERNATIONAL COOPERATION

SEC. 6. (a) Not later than January 1, 1988, the President shall institute negotiations with Canada and Mexico for the purpose of concluding a tripartite agreement—

(1) to minimize projected and existing levels of air pollution;

(2) to create an institutional framework to control sources of transboundary air pollution;

(3) to establish a North American air quality monitoring network;

(4) to encourage increased research and dissemination of information on air pollution control strategies; and

(5) to develop uniform minimum levels of protection for public health and the environment.

(b) The President shall undertake to enter into international agreements to apply uniform standards of performance for the control of the emissions of air pollutants. For this purpose the President shall negotiate multilateral treaties, conventions, resolutions, or other agreements, and formulate, present, or support proposals at the United Nations and other appropriate international forums.

(c) In the negotiations with Canada pursuant to this section, or in any bilateral negotiations with Canada involving transboundary air pollution and controls on precursors to acid deposition, the President shall seek to assure that prior to the effective date of the control provisions of part E of title I of the Clean Air Act, Canada shall adopt and enforce reductions in sulfur dioxide emissions comparable to those undertaken in the United States, including the appropriate installation of technological systems of continuous emission reduction.

(d)(1) The Secretary of State and the Administrator of the Environmental Protection Agency shall, with all due dispatch, conclude with the Government of Mexico an Annex concerning transboundary air pollution to the August 4, 1983, United States-Mexico Border Environmental Agreement. All feasible efforts shall be made to conclude a final version of said Annex as soon as possible and in no case later than 3 months after enactment of this subsection.

(2) In negotiating the Annex referred to in paragraph (1), the Secretary shall seek to assure that the Nacozari smelter in Mexico will meet pollution control standards that are at least as stringent as new source performance standards under the Clean Air Act, preferably before startup of that smelter but in no case later than January 1, 1988.

(3) In negotiating such Annex the Secretary shall seek to assure that the Cananea Smelter in Mexico will—

(A) at a minimum, achieve a level of pollution control for any increased emissions before any proposed expansion that is at least as stringent as new source performance standards under the Clean Air Act; and

(B) if technically feasible, achieve that level of pollution control for the entire source before any expansion.

(4) In negotiating such Annex the Secretary shall assure that an agreement is concluded for a mutually acceptable arrangement for monitoring, inspection, and enforcement of pollution control standards for copper smelters in both countries in the air quality control region (within 100 kilometers in each direction of the border) encompassing the copper smelters at Douglas, Arizona; Nacozari, Sonora; and Cananea, Sonora.

(3) In negotiating such Annex the Secretary shall promote a final version that in its other provisions is in no case less stringent in terms of absolute emissions and ambient air quality standards, and in the schedule for coming into force of such standards, than set out in the July 18, 1985, joint communique of the national coordinators in the 1983 Border Agreement.

(6) The Environmental Protection Agency shall perform atmospheric field experiments to determine the effects of emissions of sulfur dioxide from the Nacozari smelter in Mexico, before and after implemention of pollution controls, on concentrations of oxides of sulfur and deposition thereof in the States of Arizona, Colorado, Idaho, Montana, New Mexico, Utah, and Wyoming. The experiments shall place particular emphasis on the effects of the smelter, before and after implementation of pollution controls, on acid rain and visibility in the above-mentioned States.

EMISSION TARIFF STUDY

SEC. 7. Not later than January 1, 1989, the Secretary of the Treasury, after consultation with the Administrator of the Environmental Protection Agency, shall submit to the Committee on Environment and Public Works and the Committee on Finance of the United States Senate and the Committee on Energy and Commerce, the Committee on Public Works and Transportation, and the Committee on Ways and Means of the United States House of Representatives, a study, together with appropriate legislative proposals, on a system of tariffs on emissions adequate to encourage reductions in emissions of precursors of acid deposition and other forms of environmental pollution.

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